MZ-R55

SERVICE MANUAL

E Model
Tourist Model

Self Diagnosis Supported model

Ver 1.0 1998. 09

US and foreign parts licensed Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MT-MZR55-161
Optical Pick-up Type	KMS-280A

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: continuous
Laser output: less than 44.6 µW
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time
Maximum 74 minutes (MDW-74, stereo recording)
Maximum 148 minutes (MDW-74, monaural recording)

Revolutions
400 rpm to 900 rpm (CLV)

Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency
44.1 kHz

Sampling rate converter
Input: 32 kHz / 44.1 kHz / 48 kHz

Coding
Adaptive TRansform Acoustic Coding (ATRAC)

Modulation system
EFM (Eight to Fourteen Modulation)

Number of channels
2 stereo channels
1 monaural channel

Frequency response
20 to 20,000 Hz ± 3 dB

Wow and Flutter
Below measurable limit

Inputs
Microphone: stereo mini-jack, 0.22-0.78 mV
Line in: stereo mini-jack, 69-194 mV
Optical (Digital) in: optical (digital) mini-jack

Outputs
Headphones: stereo mini-jack, maximum output level 5 mW+ 5 mW, load impedance 16 ohm
Line out: stereo mini-jack, 194 mV, load impedance 10 kilohm

General

Power requirements
Sony AC Power Adaptor (supplied)
connected at the DC IN 3V jack:
220-230 V AC, 50/60 Hz (Hong Kong model)
100-240 V AC, 50/60 Hz (Tourist model)
Nickel metal hydride rechargeable battery NH-14WM (supplied)
Two LR6 (size AA) alkaline batteries (not supplied)

– Continued on next page –

PORTABLE MINIDISC RECORDER

MICROFILM

SONY®

Battery operation time

Batteries	Recording	Playback
NH-14WM nickel metal hydride rechargeable battery	Approx. 2.5 hours	Approx. 4 hours
Two LR6 (SG) Sony alkaline dry batteries	Approx. 5 hours	Approx. 10 hours
NH-14WM + Two LR6 (SG)	Approx. 9.5 hours	Approx. 16 hours

Dimensions

Approx. 78.9 × 18.9 × 84 mm (w/h/d)
(3 1/8 × 3/4 × 3 3/8 in.)

Mass

Approx. 147 g (5.2 oz) the recorder only
Approx. 190 g (6.7 oz) incl. a recordable MD, and NH-14WM nickel metal hydride rechargeable battery

Supplied accessories

AC power adaptor AC-MZR55 (1)
Headphones with a remote control MDR-E838SP and RM-MZR55 (1)
NH-14WM nickel metal hydride rechargeable battery (1)
Dry battery case (1)
Rechargeable battery carrying case (1)
Carrying pouch (1)
AC plug adaptor (1) (Tourist model only)

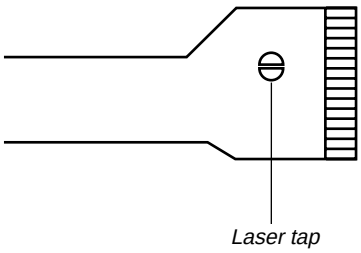
Design and specifications are subject to change without notice.

Precautions for Laser Diode Emission Check

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

Precautions for Using Optical Pick-up (KMS-280A)

As the laser diode inside the optical pick-up damages by static electricity easily, solder the laser tap of the Optical pick-up flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the Optical pick-up flexible board with care as it breaks easily.



Optical Pick-up flexible board

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

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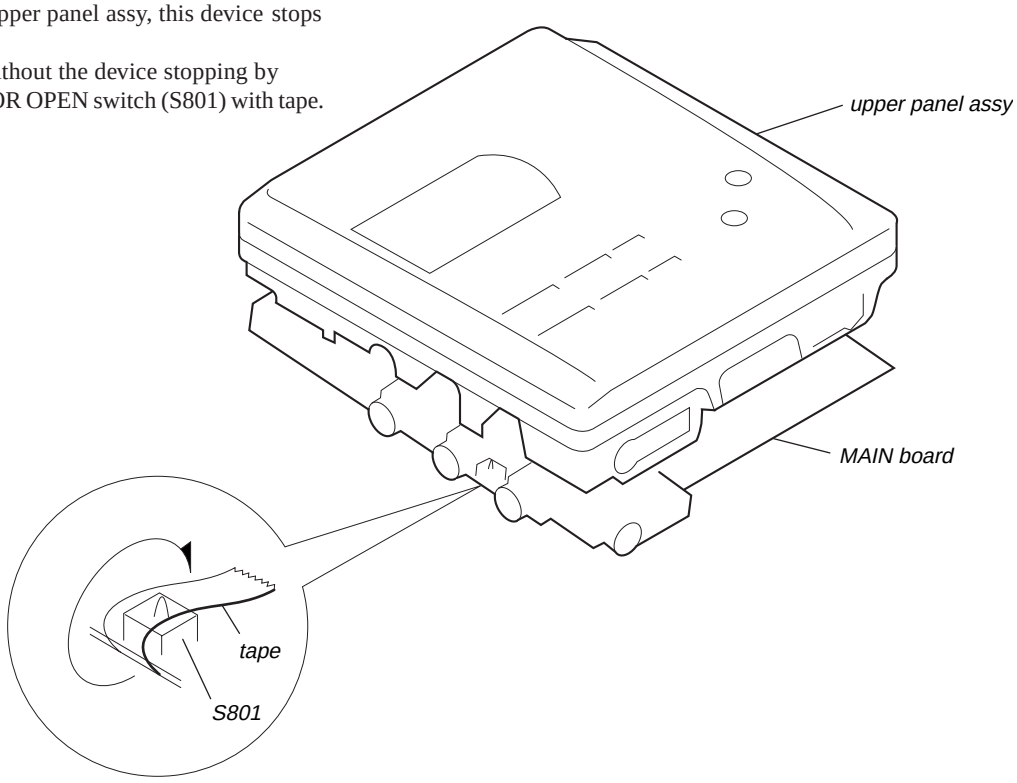
SERVICING NOTE

1) When repairing this device with the power on, if you remove the main board or open the upper panel assy, this device stops working.
In this case, you can work without the device stopping by fastening the hook of the DOOR OPEN switch (S801) with tape.



2) This set is designed to perform automatic adjustment for each adjustment and write its value to EEPROM. Therefore, when EEPROM (IC801) has been replaced in service, be sure to perform automatic adjustment and write resultant values to the new EEPROM.
Refer to page 12 for details.

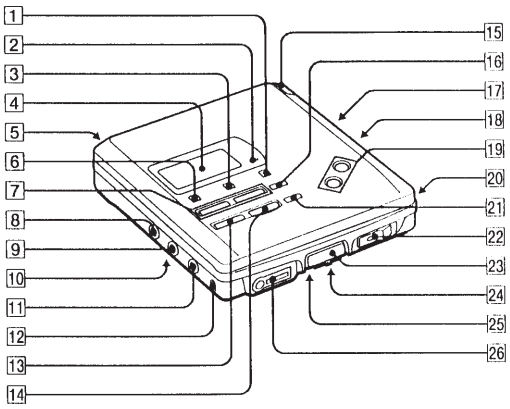
SECTION 1
GENERAL

This section is extracted from instruction manual.

Looking at the controls

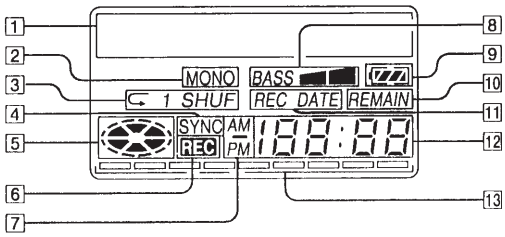
See pages in ( ) for more details.

The recorder



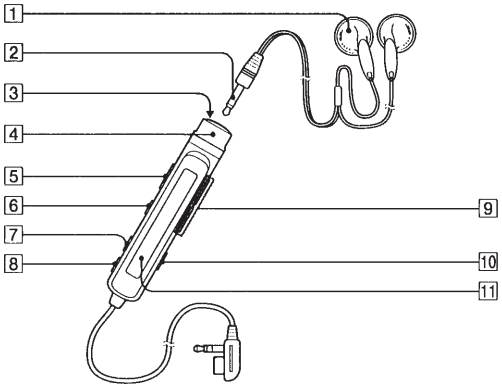
1 END SEARCH button (7)
2 REC indicator (14)
3 DISPLAY button (14, 19)
4 Display window (14, 19)
5 DC IN 3V jack (at the rear) (6)
6 MODE button (17)
7 I◄◄ / ►►I (search / AMS) button (7, 9)
8 LINE IN (OPTICAL) jack (6, 11)
9 MIC (PLUG IN POWER) jack (12)
10 MIC SENS switch (at the bottom) (12)
11 LINE OUT jack (20)
12 DIGITAL MEGA BASS button (18)
13 ■/CHARGE button (7, 9, 27)
14 ► (play) button (7, 9)
15 Battery compartment (at the rear) (27)
16 EDIT/ENTER button (21)
17 AVLS switch (at the bottom) (18)
18 SYNCHRO REC (synchro-recording) switch (11)
19 VOLUME +/– button (9)
20 T MARK button (21)
21 ❚❚ (pause) button (7, 9)
22 REC (record) switch (7)
23 OPEN button (6)
24 HOLD switch (20)
25 CLOCK SET button (at the bottom) (16)
26 ∩ (headphones)/REMOTE jack (8)

The display window



1 Character information display (14, 19)
Displays the disc and track names, date, error messages, track numbers, etc.
2 MONO (monaural) indication
3 Play mode indication
Shows the play mode of the MD.
4 SYNC (synchro-recording) indication
5 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
6 REC indication (7)
Lights up while recording. When flashing, the recorder is in record standby mode.
7 AM/PM indication (16)
Lights up along with the time indication in the 12-hour system.
8 Mega bass indication (18)
9 Battery indication (27)
Shows battery condition.
10 REMAIN (remaining time/tracks) indication (14, 19)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
11 REC DATE (recorded/current date) indication
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
12 Time display (14, 19)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
13 Level meter
Shows the volume of the MD being played or recorded.

The headphones with a remote control



1 Headphones
Can be replaced with optional headphones.
2 Stereo mini plug
3 ■ (stop) button (7,9)
4 Control (9)
To play, turn to ► • ►►I during stop.
Turn to ► • ►►I during play to search the beginning of the succeeding track; hold in this position to fast-forward.
Turn to I◄◄ during play to search the beginning of the preceeding track; hold in this position to rewind.
5 HOLD switch (20)
Slide to lock the controls of the remote control.
6 ❚❚ (pause) button (7,9)
7 PLAY MODE button (17)
8 DISPLAY button (15, 19)
9 VOL (volume) +/– buttons (9)
10 TRACK MARK button (22)
11 Display window (15, 19)

SECTION 2
SELF-DIAGNOSTIC

2-1. GENERAL

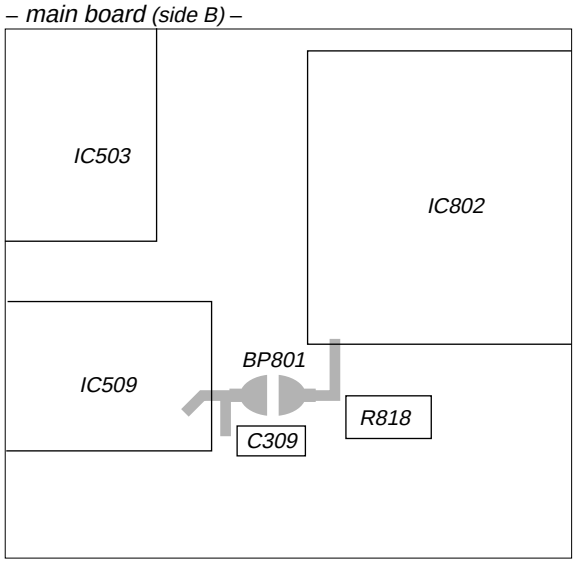
This set uses the self-diagnostic system in which if an error occurs in playback/recording mode, the error is detected by the model control and power control blocks of the microprocessor and information on the cause is stored as history in EEPROM.
By viewing this history in test mode, it helps you to analyze a fault and determine its location.

2-2. TEST MODE SETTING

There are two different methods to set the test mode:

① Short BP801 (TEST) on the main board with a solder bridge (connect pin ㉖ of IC801 to the ground). Then, turn on the power.

– main board (side B) –

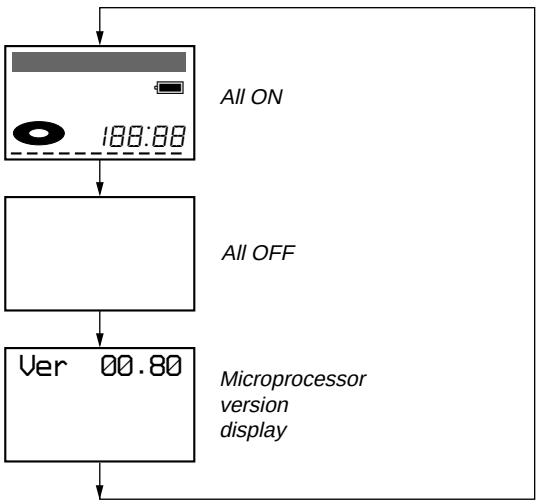


② In the normal mode, use the keys on the unit to perform the following operations:
Press and hold down ► and press the keys below in this turn:
▶▶| → ▶▶| → |◀◀ → |◀◀ → ▶▶| → |◀◀ → ▶▶| → |◀◀ → ❚❚ → ❚❚

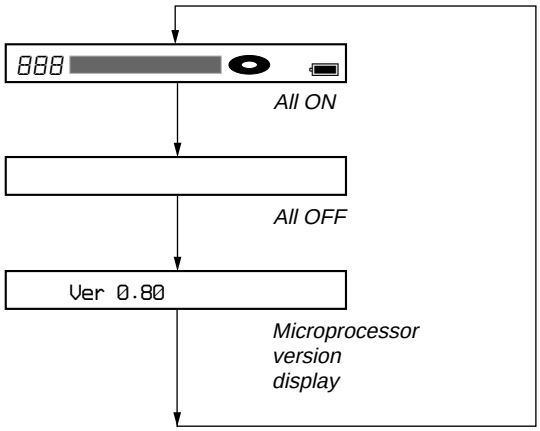
2-3. OPERATION IN TEST MODE SETTING

When the test mode is set, the LCD shows repeated cycles of the following display:

1) Unit LCD



2) Remote controller LCD



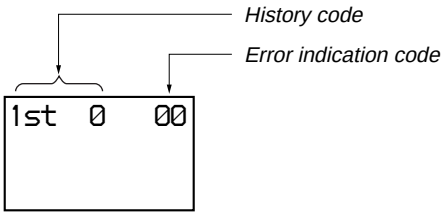
• Holding down ❚❚ allows the current display to be maintained while it being depressed.

2-4. RELEASING THE TEST MODE

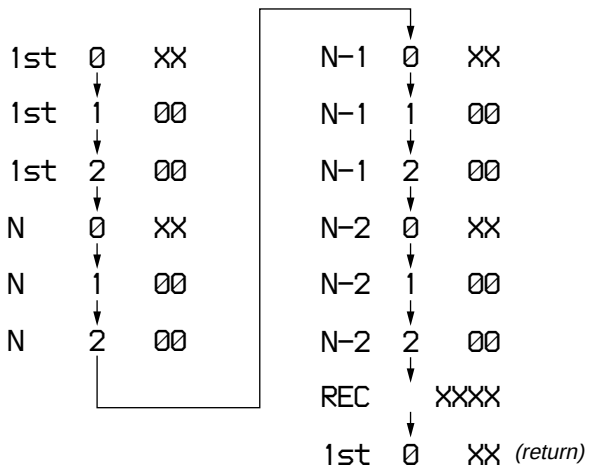
For test mode set with the method ①:
Turn off the power and open the solder bridge on BP801 on the main board.
For test mode set with the method ②:
Turn off the power.

2-5. SELF-DIAGNOSTIC MODE

1. Go into the test mode.
2. With the unit LCD indicators all flashing, press DISPLAY key to go into the self-diagnostic mode.



3. Then, each time ▶▶ key is pressed, the reference information display changes as given below.



• Press |◀◀ key to go back to the previous display.

• Description of History Codes

History code number	Description
1st 0	The first error
1st 1	00 indicated
1st 2	
N 0	The last error
N 1	00 indicated
N 2	
N-1 0	One error before the last.
N-1 1	00 indicated
N-1 2	
N-2 0	Two errors before the last.
N-2 1	00 indicated
N-2 2	
REC	Total recording time *1)

*1) Total recording time
Total recording time is recorded in minutes as an index for load to the OP. It is recorded in hexadecimal format and up to 65,535 min. (about 886 discs of 74-minute disc) can be counted. It returns to "0000h" when recorder goes beyond this limit.
Example : REC 000A → Approx. 10 min.
REC 00A0 → Approx. 160 min.
REC 0A00 → Approx. 2560 min.

• Description of Error Indication Codes

Problem	Indication code	Meaning of code	Description
No error	00		
Abnormal stop during recording	01	Servo error	Abnormal disc RPM. Focus out of alignment. Attempt to access an abnormal address.
	02	ADIP read error	Unable to read the ADIP address.
	03	Shock detected during write	Jumped by 1.5 tracks or more due to shock during write.
	04	Shock detected during laser down	Shock detected when laser was moving down.
Abnormal stop during playback	11	No focus applied	Focus could not be applied.
	12	CRC error	Unable to read the address.
	15	FG error	Abnormal rotation of disc.
Abnormal stop of recording/playback caused by power system	21	Lower voltage due to overload	Power voltage reduced due to overload.
	22	Momentary interruption	Momentary interruption detected.
	23	Lower power voltage in motor system	Power voltage for motor continuously reduced to less than 1V.
	24	Low power voltage in DSP	

2-6. CLEARING THE ERROR INDICATION CODE AND TOTAL RECORDING TIME

After repair, reset the error indication code.
Reset the total recording time when you have replaced the OP.

1. Go into the self-diagnostic mode. (See page 5.)
2. To reset the error indication code, slide REC ➡ key when the code is displayed.
   (All data including 1st, N , N-1 and N-2 are reset.)
3. To reset the total recording time, slide REC ➡ key when the time is displayed.

SECTION 3
DISASSEMBLY

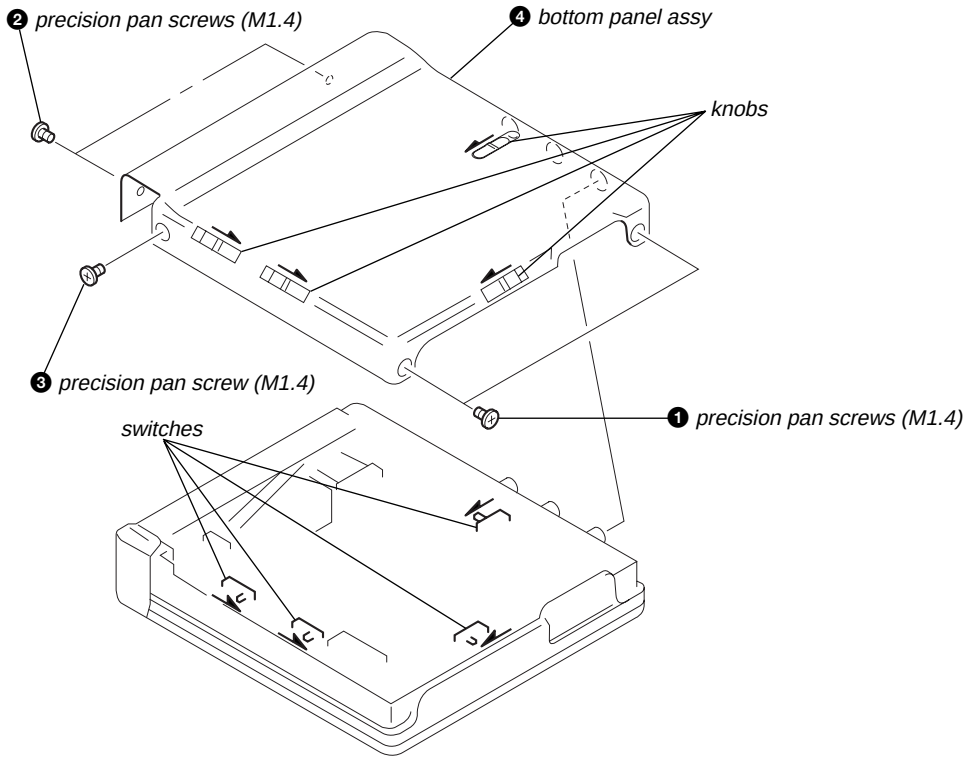
Note : This set can be disassemble according to the following sequence.

Bottom Panel assy → Connector → Main Board
Connector → Upper Panel Block assy → LCD Block assy
Upper Panel Block assy → Ornametal Belt Block assy → Main Board → Chassis (Main) assy → Over Head Block assy → Holder assy
Over Head Block assy → OP Block assy

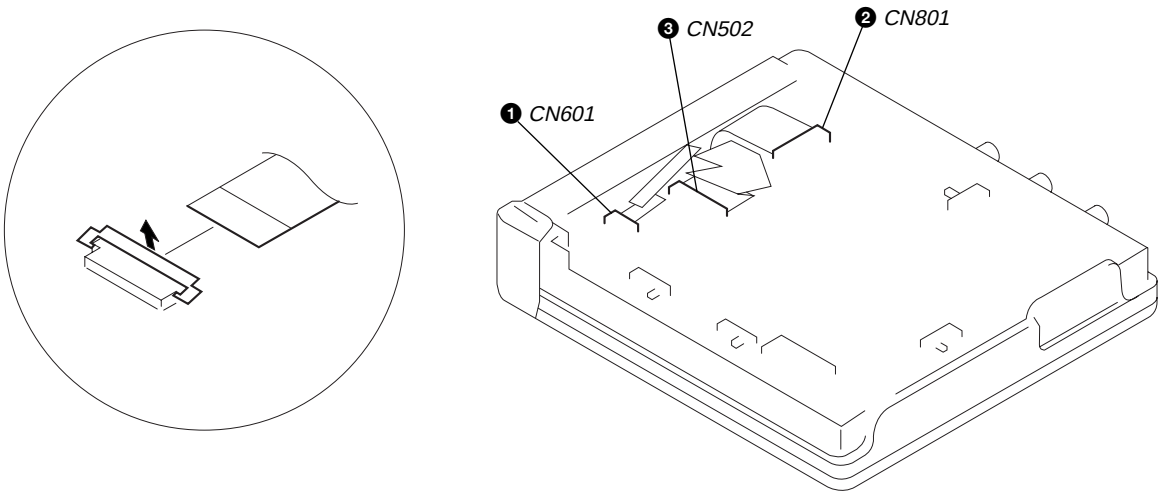
Note : Follow the disassembly procedure in the numerical order given.

3-1. BOTTOM PANEL ASSY

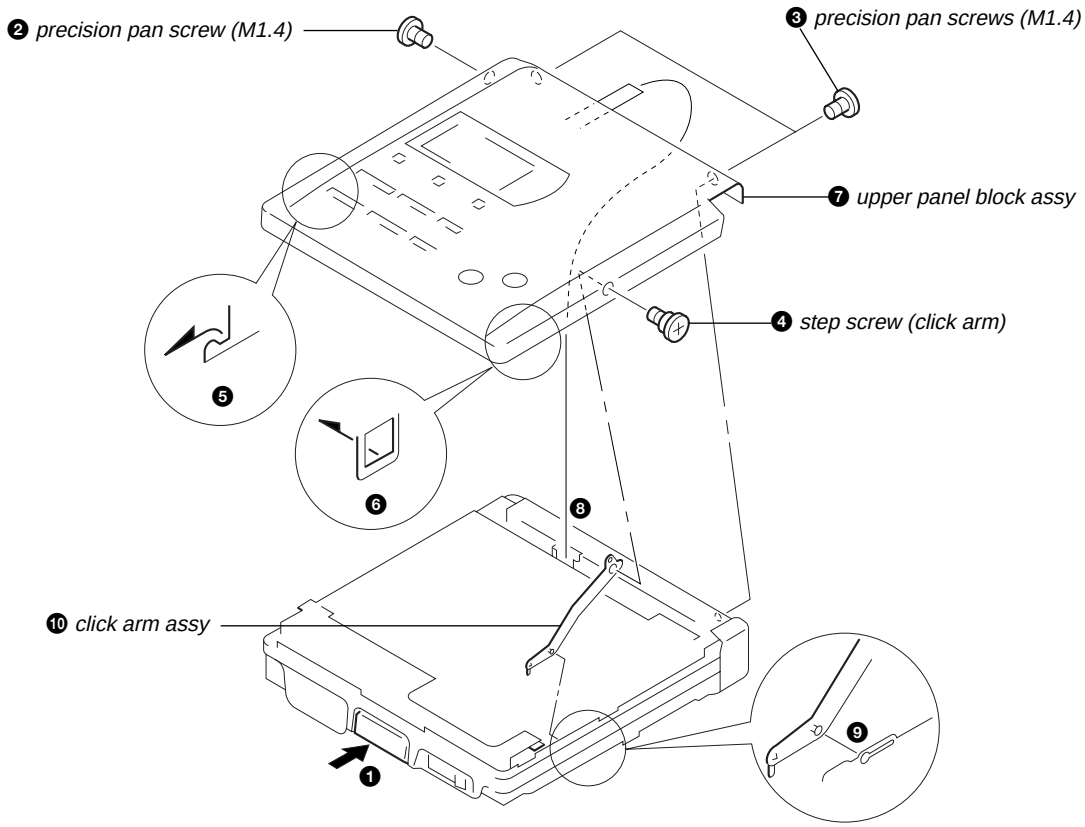
Note) *When installing, fit the each positions knobs with switches.*



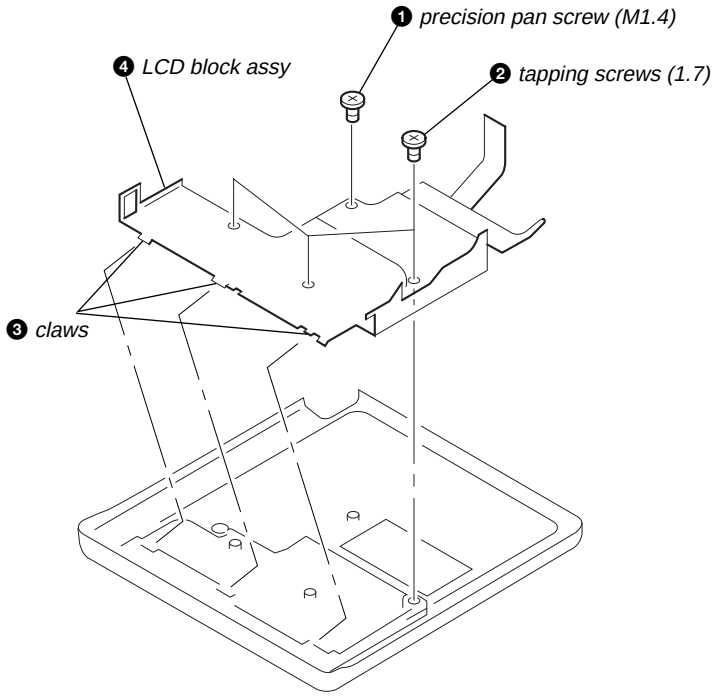
3-2. CONNECTOR



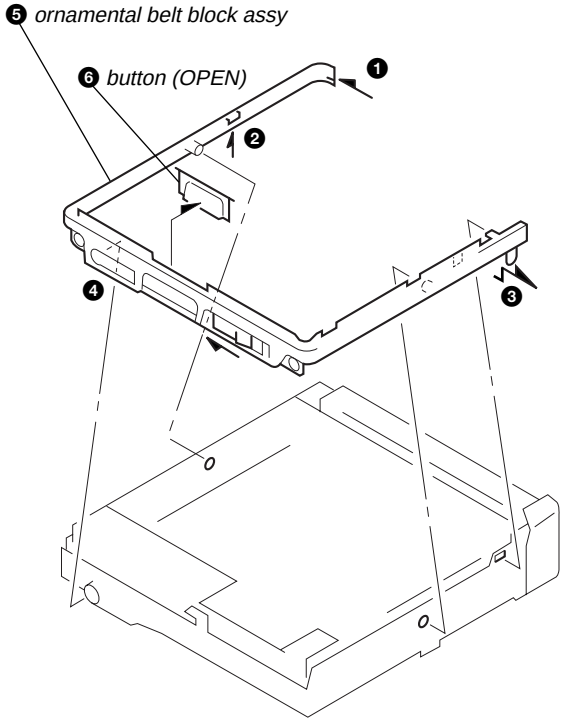
3-3. UPPER PANEL BLOCK ASSY



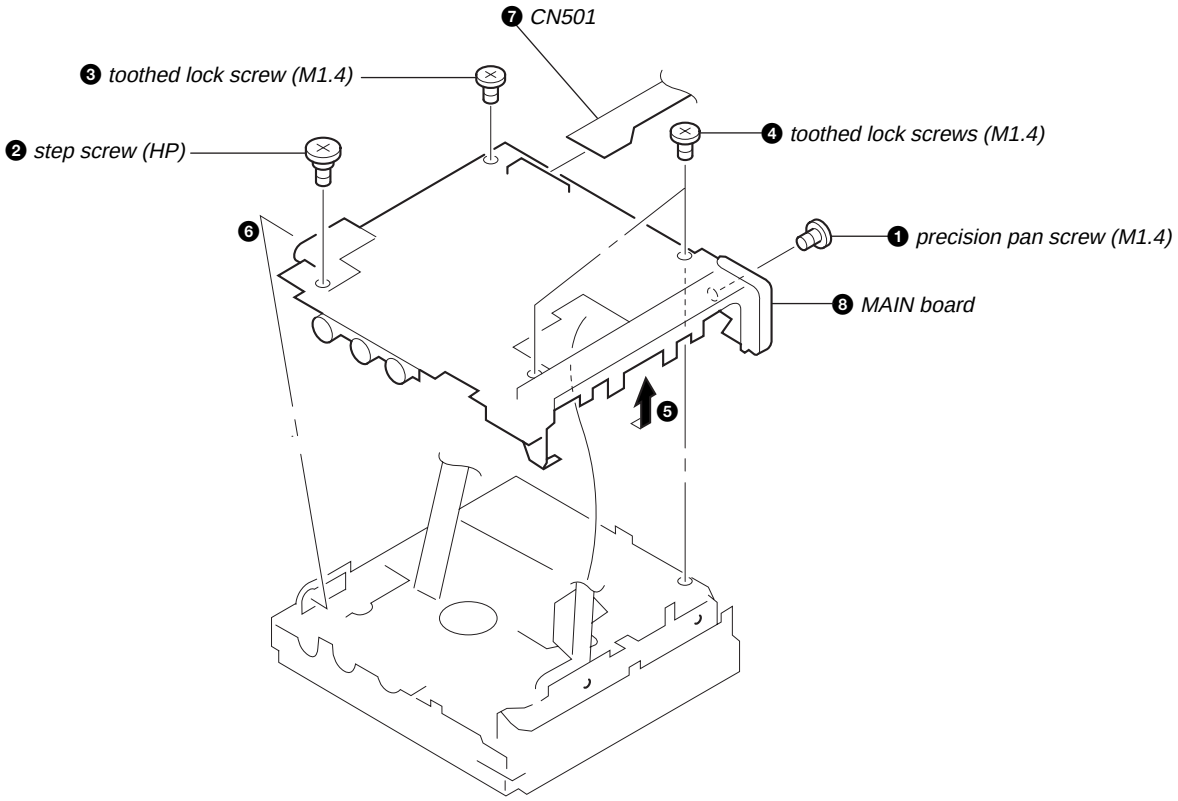
3-4. LCD BLOCK ASSY



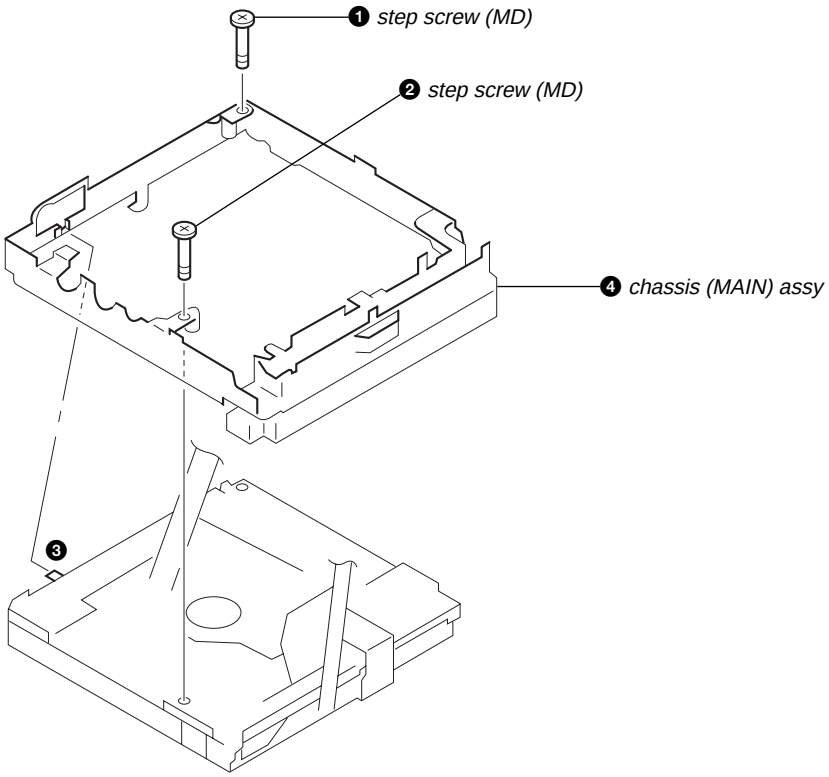
3-5. ORNAMENTAL BELT BLOCK ASSY



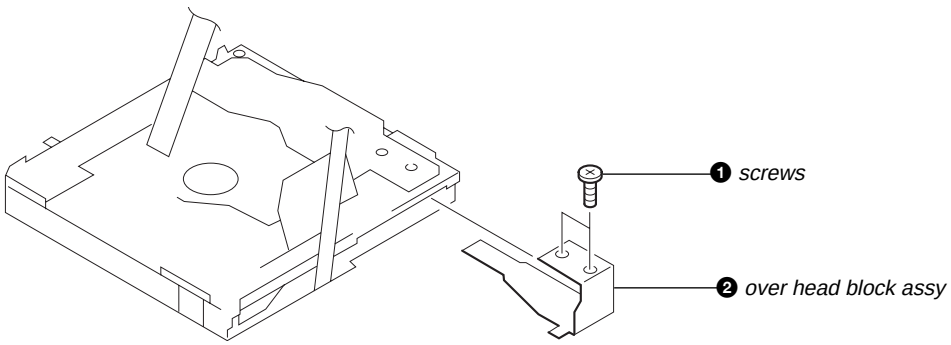
3-6. MAIN BOARD



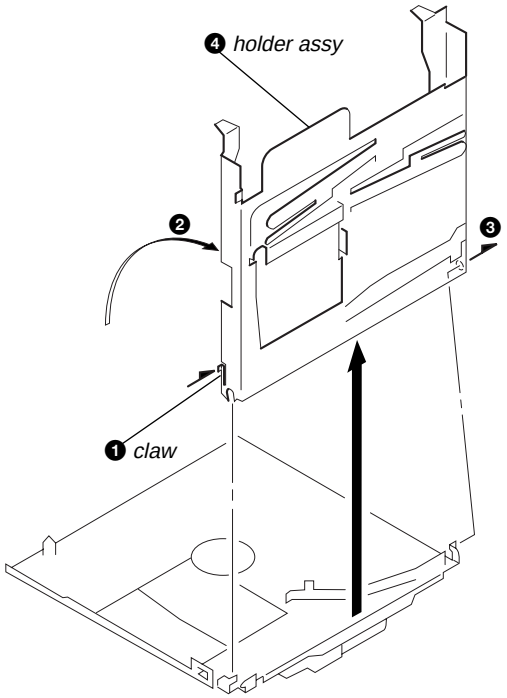
3-7. CHASSIS (MAIN) ASSY



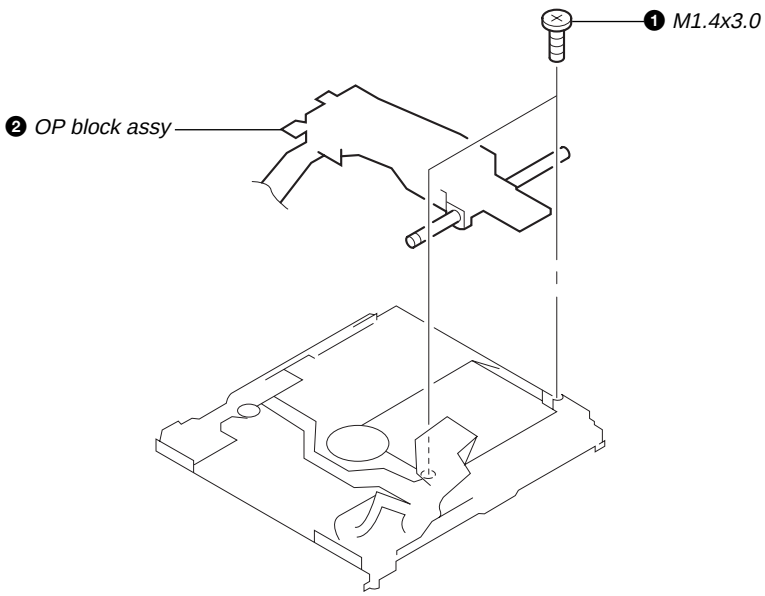
3-8. OVER HEAD BLOCK ASSY



3-9. HOLDER ASSY



3-10. OP BLOCK ASSY



SECTION 4
TEST MODE

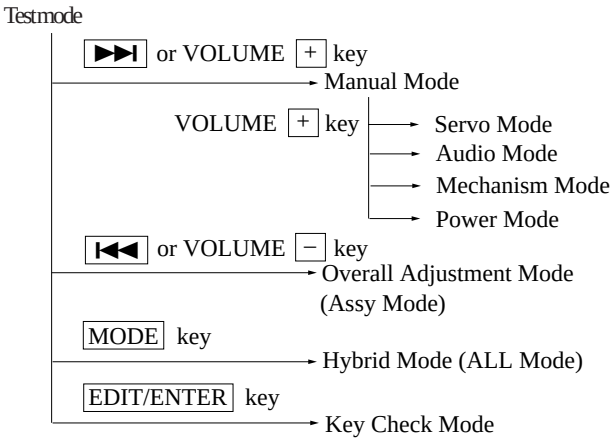
4-1. GENERAL

This set provides the Overall adjustment mode (Assy mode) that allows CD and MO disk to be automatically adjusted when in the test mode. In this Assy mode, the system discriminates between CD and MO disk and then automatically perform adjustments for them in sequence. If a fault is found, the system displays its location. Also, the Servo mode allows each individual adjustment to be automatically adjusted.

4-2. TEST MODE SETTING

See page 5.

4-3. TEST MODE STRUCTURE



4-4. MANUAL MODE

(1) Servo Mode

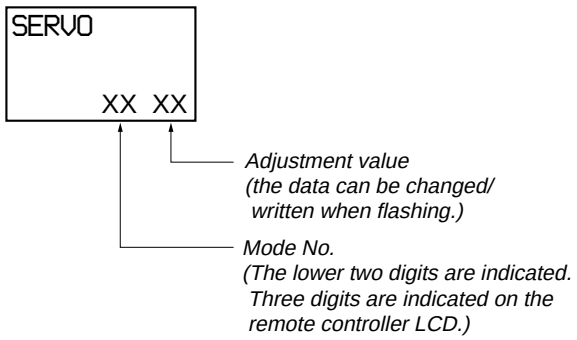
• How to Transfer in the Servo Mode:

Mode No.	Test Description	Check	Write
000	Servo mode		
010	Offset correction value indication		
011	VC offset correction		
012	Focus bias correction		
013	FE offset correction		
014	ABCD offset correction		
015	All servo ON		
016	Temperature indication		
020	Laser power adjustment		
021	Laser CD/MO read adjustment		○ (08)
022	Laser MO write adjustment		○ (4C)
023	Sled normal		○ (45)
024	Sled intermittent		○ (65)
025	Sled access		○ (30)
030	MO test adjustment		
031	MO focus search adjustment		
032	MO read FE balance adjustment		○ (0F)
033	MO read ABCD level		○ (07)
034	MO write FE balance adjustment		○ (10)
035	MO write ABCD level		○ (18)
036	Laser MO read adjustment		○ (08)
037	MO focus gain		○ (30)
038	MO tracking gain		○ (30)
039	MO focus bias	○	○ (06)
040	Low reflection CD test adjustment		
041	Low reflection CD focus search adjustment		
042	Low reflection CD FE balance adjustment		○ (10)
043	Low reflection CD ABCD level		○ (06)
044	Laser low reflection CD read		○ (08)
045	Low reflection CD focus gain		○ (30)
046	Low reflection CD tracking gain		○ (30)
047	Low reflection CD focus bias	○	○ (00)
050	CD test adjustment		
051	CD focus search adjustment		
052	CD FE balance adjustment		○ (10)
053	CD ABCD level adjustment		○ (15)
054	Laser CD read		○ (08)
055	CD focus gain		○ (30)
056	CD tracking gain		○ (30)
057	CD focus bias	○	○ (00)
060	Recording test		
061	32 cluster full recording		
062	Recording shock		
063	32 cluster full playback		

Check : Mode to display error rate and cluster.
Write : Mode to permit adjustment (Default value given in parentheses).

1. Go into the test mode.
2. Press ▶▶I VOLUME + key to set the servo mode.

Unit LCD display

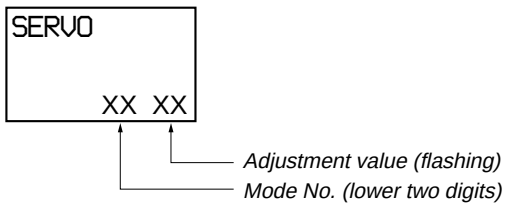


3. Press the keys below to change the mode No.

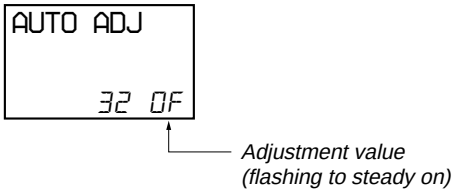
▶ : Increases the one place.
■ : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.
VOLUME +: Increases the ten place by 10 if the one place is 0.
Increases the adjustment value if the one place is non-zero.
VOLUME −: Decreases the ten place by 10 if the one place is 0.
Decreases the adjustment value if the one place is non-zero.

• How to Adjust in Servo Mode:

1. When the servo mode is set to the appropriate mode for each adjustment, the lower two digits of the mode No. and the value stored in EEPROM are displayed and flashing.



2. To perform automatic adjustment for an adjustment item with the mode number 030 to 047, press [❚❚] key.
If the result of adjustment is OK, the adjustment value changes from flashing to steady on and it is automatically written to EEPROM.

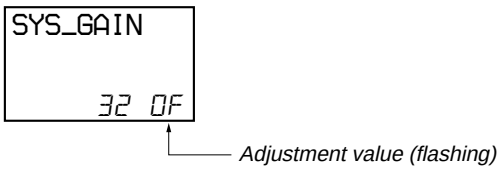


3. To perform manual adjustment, change the adjustment value with VOLUME [+] or [–] key, and press [❚❚] key to write it to EEPROM.

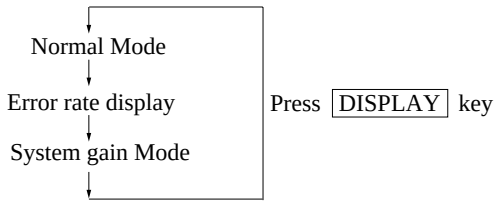
Note) Normally, automatic adjustment should be performed. Do not execute manual adjustment.

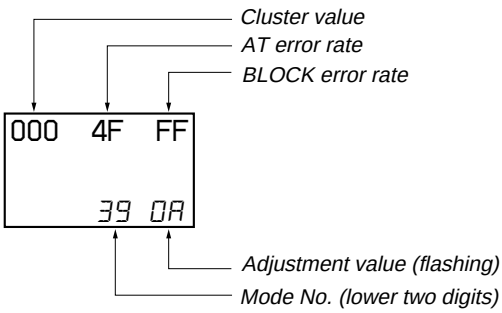
• System Gain Mode

1. This mode allows the system gain to be freely adjusted. Press [DISPLAY] key to enter this mode.



2. Increase or decrease the adjustment value with VOLUME [+] or [–] key.
3. Press [DISPLAY] or [■] key to return to the normal mode.
4. For the error rate display enabled:





Note) In normal service, do not adjust the system gain mode.

(2) Audio Mode

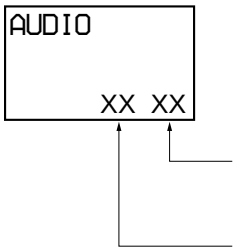
• How to Transfer in the Audio Mode

Mode No.	Test Description	Write	Change Description
100	Audio mode		
110	Audio playback		
111	L/R=1 kHz 0 dB	Playback VOL	HP output
112	L=1 kHz 0 dB	Playback VOL	HP output
113	R=1 kHz 0 dB	Playback VOL	HP output
114	L/R – ∞ dB	Playback VOL	HP output
120	Audio recording test		
121	LINE manual recording	Recording VOL	HP output
*1)	MIC manual recording		
122	DEMP LINE manual recording	Recording VOL	HP output
*1)	DEMP MIC manual recording		
123	LINE automatic recording	HP VOL	HP output
*1)	OPT automatic recording		
	MIC automatic recording		
124	DEMP LINE automatic recording	HP VOL	HP output
*1)	DEMP OPT automatic recording		
	DEMP MIC automatic recording		
130	DIGITAL AGC ADJ1		
131	MIC UP SR	○ (30)	
132	MIC DOWN SR	○ (FA)	
133	MIC THD0	○ (D0)	
134	MIC GAIN	○ (00)	
135	MIC ATTACK	○ (A0)	
136	MIC RECOVER	○ (F8)	
137	MIC THD2	○ (F0)	
138	MIC GAIN2	○ (D0)	
139	MIC RTIME	○ (01)	
140	DIGITAL AGC ADJ2		
141	LINE UP SR	○ (17)	
142	LINE DOWN SR	○ (FF)	
143	LINE THD0	○ (D0)	
144	LINE GAIN	○ (0C)	
145	LINE ATTACK	○ (33)	
146	LINE RECOVER	○ (F8)	
147	LINE THD2	○ (E4)	
148	LINE GAIN2	○ (5F)	
149	LINE RTIME	○ (04)	
150	DIGITAL AGC ADJ3		
151	MAN UP SR	○ (C0)	
152	MAN DOWN SR	○ (40)	
153	AUTO THD3	○ (51)	
154	AUTO LMT UP SR	○ (FF)	
155	AUTO LMT DOWN SR	○ (E0)	
156	MAN THD3	○ (51)	
157	MANU LMT UP SR	○ (FF)	
158	MANU LMT DOWN SR	○ (A0)	
159	THD1	○ (1A)	

*1) The port is detected and the input is automatically selected.
Contents changed : Contents to be changed when VOLUME [+] or [–] key is pressed.
Write : Mode to permit adjustment
(Default value given in parentheses)

1. Go into the test mode.
2. Press [▶▶❙] key or VOLUME [+] key and VOLUME [+] key in this turn to set the audio mode.

Unit LCD display



Adjustment value
(the data can be changed/ written when flashing.)

Mode No.
(The lower two digits are indicated. Three digits are indicated on the remote controller LCD.)

3. Press the keys below to change the mode number.
   ►: Increases the one place.
   ■: Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+]: Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.

VOLUME [–]: Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Adjust in the Audio Mode

1. When the audio mode is set to the appropriate mode for each adjustment, the lower two digits of the mode No. and the value stored in EEPROM are displayed and flashing.
2. Change the adjustment value with VOLUME [+] or [–] key and press [❚❚] key to write the new value to EEPROM.

• How to Check in the Audio Mode

The audio mode allows the checks below to be performed:

1. For the mode numbers of 100 and 110 to 114, pressing [❚❚] key will activate a beep. (No beep sounds when [HOLD] switch is put on.)
2. For the mode numbers of 121 to 124, pressing [DIGITAL MEGA BASS] key will display the DBB mode or the adjustment value.
   1 : Mode 1
   2 : Mode 2
   13 : OFF
   (This will not be accepted when the LINE OUT jack is plugged. The display will be 13: OFF when LINE OUT jack is plugged in Modes 1 and 2.)
3. For the mode numbers of 120 to 124, [REC] LED goes on. (The LED does not go on when SYNCHRO REC switch is put on.)

(3) Mechanism Mode

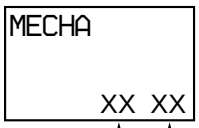
• How to Transfer the Mode in the Mechanism Mode:

Mode No.	Test Description	Operation
200	FUNCTION	Stepper control
210	MECHA test	Initial position return
211	HEAD adjustment	Operation variation changing (19)
212	REC position	Recording head descent
220	CLOCK	Clock
221	CLOCK check	Clock check/initialization

( ) : Default value

1. Go into the test mode.
2. Press [►►|] VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the mechanism mode.

Unit LCD display



Adjustment value

Mode No.
(Lower two digits are displayed.)

3. Press the keys below to change the mode No.
   ►: Increases the one place.
   ■: Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+]: Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.

VOLUME [–]: Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Check in the Mechanism Mode

The mechanism mode allows the checks below to be performed:

1. For the mode numbers of 200, 210 to 212, 220 and 221, pressing [|◄◄] key will move the optical pickup to the inner radius. Pressing [►►|] key will move the pickup to the outer radius.
2. For the mode numbers of 211 and 212, pressing [❚❚] key will start aging. Pressing [■] key will stop aging.
   • Mode No. 211 ... Sled aging with stepper at playback position.
   • Mode No. 212 ... Sled aging with stepper at recording position.
3. With the mode number 210 selected, pressing [❚❚] key will start aging with steeper at between home and recording positions. [■] key will stop aging.

• Clock Operation Check

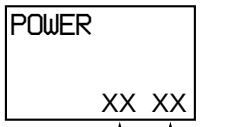
1. For the mode No. of 221, operation check is performed. It is determined as OK if at 11 years, 11 months, 11 days, 11 hours, 11 minutes and 11 seconds or not the default value.
2. For the mode No. of 221, pressing [▮▮] key will clear the resume data stored in EEPROM and initialize the clock data.

Note) The clock should be set when the overall adjustment mode is completed as OK. The write data is to be at 11 years, November 11 days, 11 hours, 11 minutes and 11 seconds.

(4) Power Mode

Mode No.	Test Description	Indication value	Remark
300	POWER test		
310	POWER SUPPLY		
311	DC IN	+B voltage value	
312	DC IN + Ni-Cd	+B voltage value	
313	Ni or AM3	+B voltage value	
314	AM3	+B voltage value	
320	CHG TEST		
321	Charging start		

1. Go into the test mode.
2. Press [▶▶▮] key or VOLUME [+] and VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the power mode.



Adjustment value
Mode No.
(Lower two digits are displayed.)

3. Press the keys below to change the mode No.

[▶] : Increases the one place.
[■] : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.
VOLUME [+]: Increases the ten place by 10 if the one place is 0.
Increases the adjustment value if the one place is non-zero.
VOLUME [–]: Decreases the ten place by 10 if the one place is 0.
Decreases the adjustment value if the one place is non-zero.

Note) With the mode number 310 selected, pressing [▶▶▮] key will transfer to the mode number (311 to 314) for the currently operating power.
With the mode number 300 selected, pressing [▮▮] key will set the sleep mode. Pressing [■] key will release it.

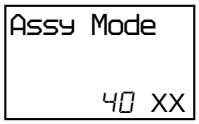
• How to Check in the Power Mode

1. For the mode numbers of 311 to 314, the voltage of the currently operating power is displayed.

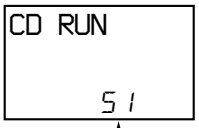
4-5. OVERALL ADJUSTMENT MODE (ASSY MODE)

• How to Adjust in Assy Mode

1. Go into the test mode.
2. Press [▮◀◀] VOLUME [–] key.



3. Insert the test CD (TDYS-1) or an available SONY CD.
4. Press [▶▮] key. The system discriminates between CD and MO and performs automatic adjustment for CD.

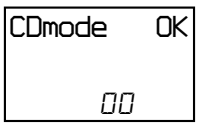


Mode No. under adjustment

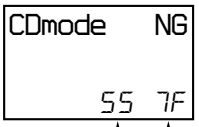
• CD Automatic Adjustment

Mode No.	Adjustment Description
052	CD FE balance adjustment
053	CD ABCD level adjustment
055	CD focus gain
056	CD tracking gain
057	CD focus bias

5. If the result of automatic adjustment is OK, the following display appears:

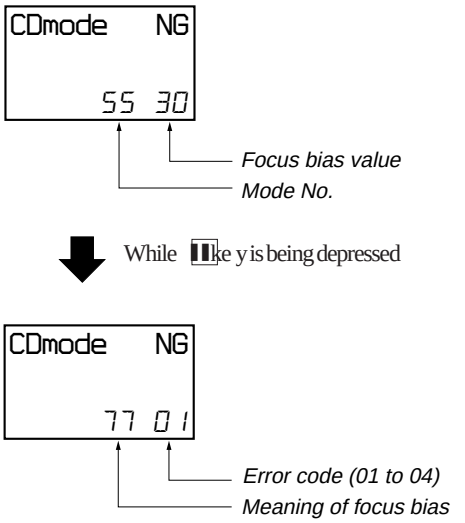


6. If the result of automatic adjustment is NG, the following display appears:

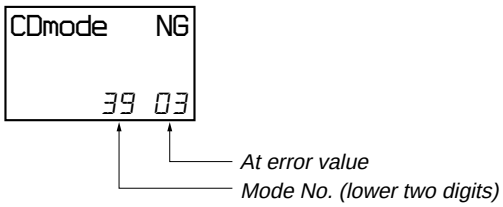


Result of adjustment
NG mode No. (lower two digits)

* For the mode numbers of 039 and 057, if the focus bias value is NG, the following display is repeated:

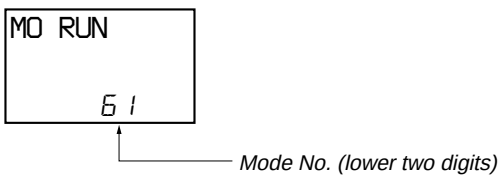


* For the mode numbers of 039 and 061, if the AT error rate is NG, the following display is repeated:



7. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

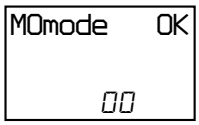
8. Insert a MO disk.
9. Press key. The system discriminates between CD and MO and performs automatic adjustment for the MO disk.



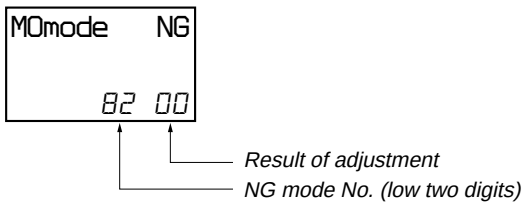
• MO Automatic Adjustment

Mode No.	Adjustment Description
032	MO read FE balance adjustment
033	MO read ABCD level
034	MO write FE balance adjustment
035	MO write ABCD level
037	MO focus gain
038	MO tracking gain
061	32 cluster full recording
062	Recording shock
063	32 cluster full playback
039	MO focus bias
042	Low refrection CD FE balance adjustment
043	Low refrection CD ABCD level
044	Laser low reflection CD read
046	Low refrection CD tracking gain

10. If the result of automatic adjustment is OK, the following display appears:



11. If the result of automatic adjustment is NG, the following display appears:



12. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

4-6. HYBRID MODE, KEY CHECK MODE

These modes are not used in normal service.

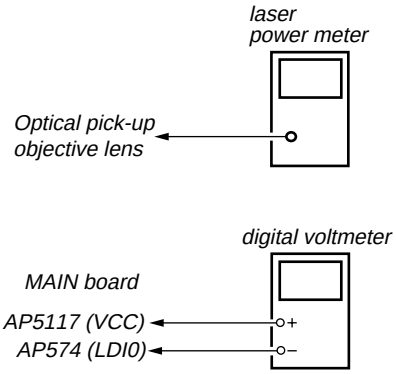
SECTION 5
ELECTRICAL ADJUSTMENTS

PRECAUTIONS FOR ADJUSTMENT

1) Perform all adjustments in the order given in the test mode. After adjusting, exit the test mode.
2) Use the following tools and measuring instruments.
   - Test CD TDYS-1 (Part No. : 4-963-646-01)
   - Recorded MO disk PTDM-1 (Part No. : J-2501-054-A)
   - Laser power meter LPM-8001 (Part No. : J-2501-046-A)
   - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
   - Digital voltmeter
3) Unless specified otherwise, supply DC 3V from the DC IN 3V jack.
4) Swtich, knob positions
   HOLD switch ..... OFF
   AVLS switch ..... NORM

LASER POWER CHECK

Connection :



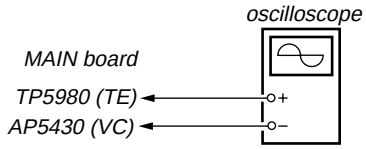
Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the [▶▶] key, and set the laser power adjustment mode (Mode : 020) using the VOLUME [+] or [–] key.
3. Press the [|◀◀] key and move the optical pick-up to the innermost circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
5. Press the [▶▶] key, and set the laser CD/MO read adjustment mode (Mode : 021).
6. Check that the laser power meter reading is 0.85 ±0.085 mW.
7. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 44 mV.
8. Press the [▶▶] key, and set the laser MO write adjustment mode (Mode : 022).
9. Check that the laser power meter reading is 6.8 ±0.68 mW.
10. Press the [▮▮] key to finalize the adjustment data.
11. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 80 mV.
12. Press the [■] key.
13. Exit the test mode.

Adjustment Location : See page 19.

MO TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the [▶▶] key, and set the MO test adjustment mode (Mode : 030) using the VOLUME [+] or [–] key.
3. Press the [|◀◀] or [▶▶|] key and move the optical pick-up to the center circumference.
4. Insert any MO disk available on the market.
5. When the [▶▶] key is pressed, the MO read FE balance adjustment mode (Mode : 032) will be set after MO focus search adjustment mode (Mode : 031).
6. Press the [▮▮] key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.
7. Slide the REC key and set the MO write FE balance adjustment mode (Mode : 034).
8. Press the [▮▮] key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

Specification : A = B, C ≧1.0 Vp-p

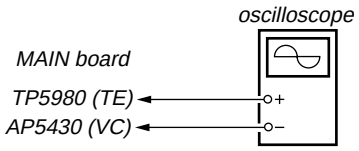
9. Check that the traverse level at this time is above 1.0 Vp-p.
10. Press the [■] key.
11. Exit the test mode.

Note) Using a recorded disk in this adjustment will erase the data.

Adjustment Location : See page 19.

LOW REFLECTION CD TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the PLAY key, and set the low reflection CD test adjustment mode (Mode : 040) using the VOLUME + or – key.
3. Insert any MO disk available on the market.
4. When the PLAY key is pressed, the low reflection CD FE balance adjustment mode (Mode : 042) will be set after low reflection CD focus search adjustment mode (Mode : 041).
5. Press the PAUSE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

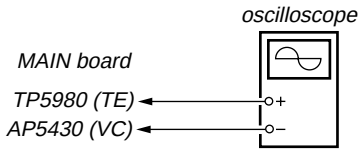
Specification : A = B, C ≧0.9 Vp-p

6. Check that the traverse level at this time is above 0.9 Vp-p.
7. Press the STOP key.
8. Exit the test mode.

Adjustment Location : See page 19.

CD TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the PLAY key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the TRACK ◀◀ ▶▶ key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the PLAY key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. Press the PAUSE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

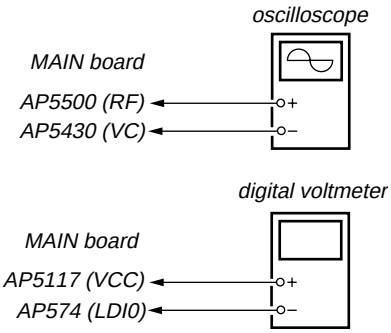
Specification : A = B, C ≧1.0 Vp-p

7. Check that the traverse level at this time is above 1.0 Vp-p.
8. Press the STOP key.
9. Exit the test mode.

Adjustment Location : See page 19.

CD RF LEVEL CHECK

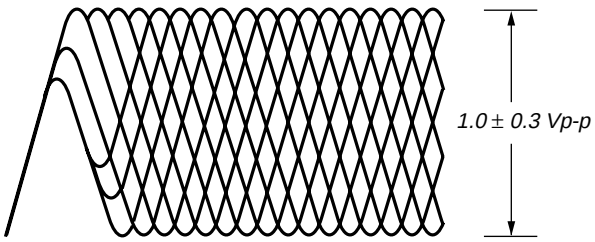
Connection :



Adjustment Method :

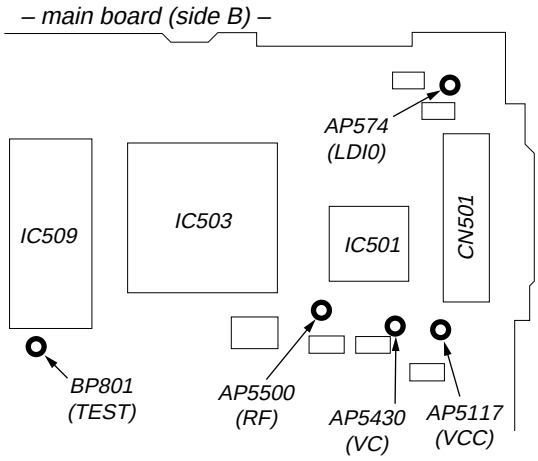
1. Set the servo mode of the test mode (Mode : 000).
2. Press the ▶ key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the ⏮ or ⏭ key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the ▶ key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. When the ▶ key is pressed, the CD ABCD level adjustment mode (Mode : 053) is set.
7. Press the ⏸ key to perform automatic adjustment, and check that the RF level is 1.1 ± 0.3 Vp-p.

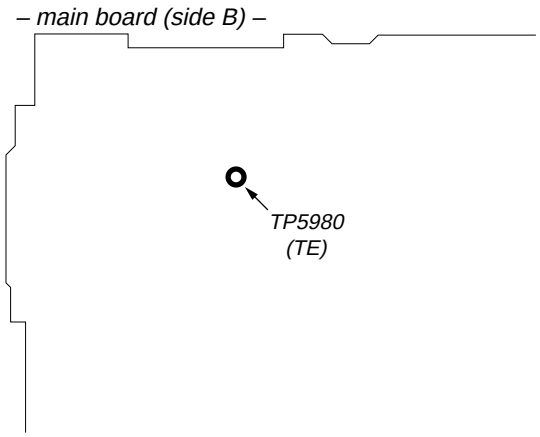
(RF waveform)



8. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) and at this time is below 40 mV.
9. Press the ■ key.
10. Exit the test mode.

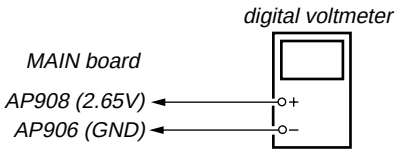
Adjustment Location :





2.65V ADJUSTMENT

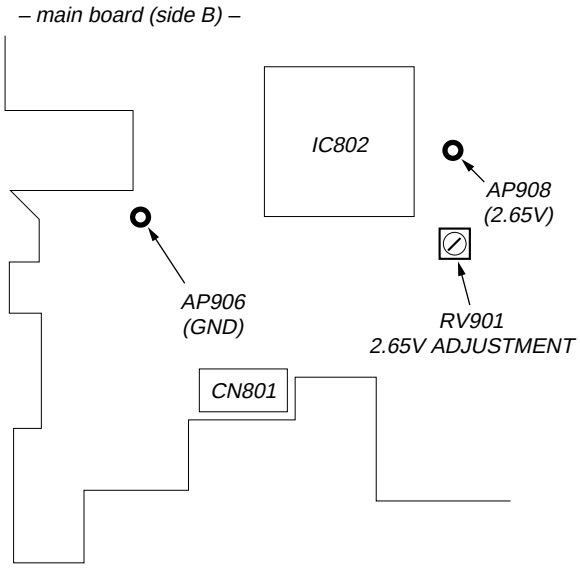
Connection :



Adjustment Method :

1. Playback the test CD (TDYS-1).
2. Adjust RV901 so that the voltage between AP908 (2.65V) and AP906 (GND) is at 2.65 ± 0.03 Vdc.

Adjustment Location :



SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTIONS

• IC503 CXD2652AR (DIGITAL SERVO, ATRAC)

Pin No.	Pin name	I/O	Pin Description
1	MNT 0	O	Traverse count signal output.
2	MNT 1	O	Track jump detect output.
3	MNT 2	—	Not used (Open).
4	MNT 3	—	Focus OK signal output.
5	SWDT	I	Inputs write data signal from system controller (IC802).
6	SCLK	I	Inputs serial clock signal from system controller (IC802).
7	XLAT	I	Inputs serial latch signal from system controller (IC802).
8	SRDT	O	Outputs write data signal to system controller (IC802).
9	SENS	O	Outputs internal status (SENS) to system controller (IC802).
10	XRST	I	Inputs reset signal from system controller (IC802). L : Reset
11	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
12	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
13	WRPWR	I	Inputs laser power switching signal from system controller (IC801).
14	NC	—	Not used (Open).
15	TX	I	Input of write data taransmission timing from system controller (IC801). Also used as magnetic field head ON/OFF output.
16	OSC1	O	Clock output (22.5 MHz).
17	OSC0	I	Clock input (22.5 MHz).
18	XTSL	—	Not used (Fixed at “L”)
19	NC	—	Not used (Connect to ground).
20	RVSS	—	Connect to ground.
21	DIN	I	Digital audio signal input pin (For optical input).
22	NC	—	Not used (Open).
23	ADDT	I	Audio data input from A/D converter (IC301).
24	DATA	O	Monitor/decode audio data output to A/D converter (IC301).
25	ALRCK	O	L/R clock output to D/A converter (IC301).
26	ABCK	O	Bit clock signal output to A/D, D/A converter (IC301).
27	FS256	O	11.2896 MHz clock output (MCLK).
28	DV_{DD}	—	Power supply (+2.8 V) for digital.
29 – 39	A00 – A08, A10, A11	O	Address signal output to DRAM (IC509).
40	DVSS	—	Ground terminal.
41	XOE	O	Output enable contol signal output to DRAM (IC509).
42	XCAS	O	Column address strobe singal output to DRAM (IC509).
43	A09	O	Address signal output to DRAM (IC509).
44	XRAS	O	Row address strobe signal output to DRAM (IC509).
45	XWE	O	Read/write control signal output to DRAM (IC509).
46 – 49	D0 – D3	I	Data signal input from DRAM (IC509).
50	MVCI	—	Not used (Connect to ground).
51	ASYO	O	Playback EFM full-swing output (L : VSS, H : VDD).
52	ASYI	I	Playback EFM asymmetry comparate voltage input.
53	AVDD	—	Power supply (+2.8 V) for analog.
54	BIAS	I	Playback EFM asymmetry circuit constant current input.
55	RFI	I	Inputs playback EFM RF signal from RF amplifier (IC501).

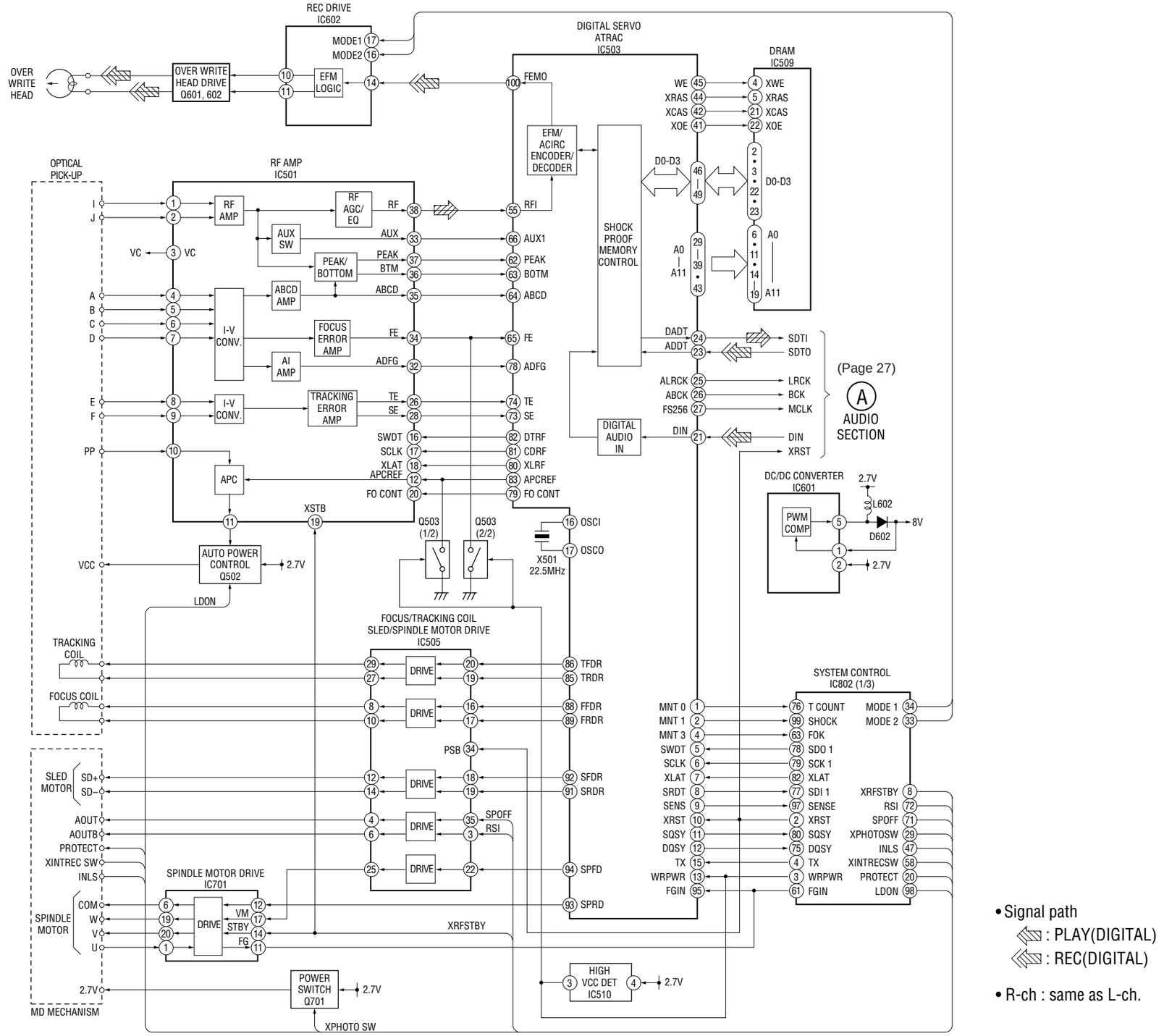
Pin No.	Pin name	I/O	Pin Description
56	AVSS	—	Ground terminal.
57	PDO	—	Not used (Open).
58	PCO	O	Decoder PLL master clock PLL phase comparison output.
59	FILI	I	Decoder PLL master clock PLL filter input.
60	FILO	O	Decoder PLL master clock PLL filter output.
61	CLTV	I	Decoder PLL master clock PLL VCO control voltage input.
62	PEAK	I	Inputs peak hold signal for light amount signal from RF amplifier (IC501).
63	BOTM	I	Inputs bottom hold signal for light amount signal from RF amplifier (IC501).
64	ABCD	I	Light amount signal from RF amplifier (IC501).
65	FE	I	Input focus error signal from RF amplifier (IC501).
66	AUX1	I	Input of auxiliary signal from RF amplifier (IC501).
67	VC	I	Input of middle point voltage (+1.4 V) from RF amplifier (IC501).
68	ADIO	—	Not used (Open).
69	AVDD	—	Power supply (+2.8 V) for analog.
70	ADRT	—	Not used (Connect to +2.8 V).
71	ADRB	—	Not used (Connect to ground).
72	AVSS	—	Ground terminal.
73	SE	I	Input of sled error signal from RF amplifier (IC501).
74	TE	I	Input of tracking error signal from RF amplifier (IC501).
75	AUX2	—	Not used (Connect to +2.8 V).
76	DCHG	—	Not used (Connect to +2.8 V).
77	APC	—	Not used (Connect to +2.8 V).
78	ADFG	I	Input of ADIP dual FM signal from RF amplifier (IC501) (22.05 kHz ± 1 kHz). (TTL Schmit input)
79	FO CONT	O	Focus control output to RF amplifier (IC501).
80	XLRF	I	Latch signal input from RF amplifier (IC501).
81	CKRF	O	RFCK clock (7.35 kHz) signal output.
82	DTRF	I	Serial data input from system controller (IC802).
83	APCREF	I	Laser power setting signal input.
84	LDDR	—	Not used (Open).
85	TRDR	O	Tracking servo drive signal output (–).
86	TFDR	O	Tracking servo drive signal output (+).
87	DVDD	—	Power supply (+2.8 V) for digital.
88	FFDR	O	Focus servo drive signal output (+).
89	FRDR	O	Focus servo drive signal output (–).
90	FS4	O	Not used (Open). (176.4 kHz clock signal output (MCLK).)
91	SRDR	O	Sled servo drive signal output (–).
92	SFDR	O	Sled servo drive signal output (+).
93	SPRD	O	Spindle servo drive signal output (–).
94	SPFD	O	Spindle servo drive signal output (+).
95	FGIN	I	FG signal input from spindle motor driver (IC701).
96	TEST1	—	Not used (Connect to ground).
97	TEST2	—	Not used (Connect to ground).
98	TEST3	—	Not used (Connect to ground).
99	DVSS	—	Ground terminal.
100	EFMO	O	EFM recording signal output.

• IC802 CXP740010 (SYSTEM CONTROL)

Pin No.	Pin name	I/O	Pin Description
1	CLKCS	O	Chip select output to real time clock (IC805).
2	XRST	O	Reset output. L : Reset
3	WRPWR	O	Laser power switching signal output.
4	TX	O	Write data transfer timing output.
5	SDI2	I	Serial data input.
6	SDO2	O	Serial data output.
7	SCK2	O	Serial clock output.
8	XRF-STBY	O	Power control output to RF amplifier (IC501).
9	SSB	I/O	SSB data signal input and output.
10	SSB SCK	I/O	SSB clock signal input and output. (Not used (Open).)
11	DTCK	I/O	Remote control data signal input/output.
12	SPCK	—	Not used (Open).
13	WP	I	Wake-up signal input from remote control key and this unit key.
14	OPEN	I	Detecting switch for opening and closing of the upper cover. L : Close
15	CLOCK	I	CLOCK SET switch input.
16	NC	—	Not used (Open).
17	NC	—	Not used (Open).
18	T.MARK	I	T MARK (Track mark) switch input.
19	REC	I	REC switch input.
20	PROTECT	I	Disc write protect switch. H : Protect
21	HOLD	I	HOLD switch input (This unit). L : HOLD
22	SYNC REC	I	SYNCHRO REC switch input.
23	D. B. B	I	DIGITAL MEGA BASS slide switch input.
24	XLINEDET	I	LINE IN (OPTICAL) detection input. L : LINE IN
25	AVLS	I	AVLS switch input. L : LIMIT
26	XTEST	I	Test mode terminal. L : Test mode
27	XDCIN	I	Not used (Open). (DC input detect. L : DC IN)
28	KANA SE L	I	Model input. (L : J model, H : Tourist, Hong Kong model)
29	XPHOTO SW	O	ON/OFF control signal output of PHOTO circuit.
30	XP CONT	O	Power control output. L : ON
31	X2VCONT	O	Outputs H while operating with a lithium battery. 2V power control signal output. L : ON
32	XREC LED	O	REC LED control. L : ON
33	MODE2	O	REC drive (IC602) control signal output.
34	MODE1	O	
35	XNIMH CHG	O	Battery charger control signal output. L : Charge
36	XLCD ON	O	LCD ON/OFF control. L : ON
37	——	—	Not used (Open).
38	MRST	I	Microprocessor reset input.
39	V_{SS}	—	Ground.
40	XTAL	—	System clock (12 MHz).
41	EXTAL	—	System clock (12 MHz).
42	LCD STBY	O	LCD communication strobe signal output to LCD driver.
43	NC	—	Not used.
44	LCD DATA	O	LCD data output.
45	LCD SCK	O	Serial clock output.
46	CHG MNT	I	Battery charge voltage minitor input.
47	INLS	I	Detecting switch for internal circuit of sleding. L : Internal circuit
48	HIDC MNT	I	Voltage monitor DC input.
49	KEYR	I	Remote control key input.
50	AV_{SS}	—	Ground terminal for A/D converter.

Pin No.	Pin name	I/O	Pin Description
51	AVREF	I	A/D converter reference voltage input.
52	AV_{DD}	—	A/D converter power supply terminal.
53	NC	—	Not used (Open).
54	TEMP	I	Temp meter (IC803) input.
55	KEY3	I	Key input.
56	KEY4	I	Key input.
57	KEY1	I	Key input.
58	XINT REC SW	I	Recording head position detect input.
59	UNREG MNT	I	2.8 V voltage monitor input.
60	2V MNT	I	Voltage monitor for lithium battery. Motor power voltage monitor input.
61	FG IN	I	FG input from motor driver (IC503).
62	NC	—	Not used (Open).
63	FOK	I	Focus OK signal input.
64	——	—	Not used (Open).
65	——	—	Not used (Open).
66	XJACKDET	I	LINE IN (OPTICAL) jack detection input.
67	OPT DET	I	LINE IN (OPTICAL) optical detection input.
68	XMIC DET	I	MIC (PLUG IN) jack detection.
69	——	—	Not used (Open).
70	——	—	Not used (Open).
71	SPOFF	O	REC head motor control signal output.
72	RSI	O	
73	CHG CONT	O	Constant current chage control signal output.
74	——	—	Not used (Open).
75	DQSY	I	Subcode Q sync (SCOR) of digital in U-bit CD format from IC503.
76	T COUNT	I	Traverse count signal input.
77	SDI1	I	Serial data input.
78	SDO1	O	Serial data output.
79	SCK1	O	Serial clock output.
80	SQSY	I	SUB-Q/ADIP SYNC input.
81	BEEP	O	BEEP sound output control.
82	XLAT	O	Latch output.
83	NC	—	Not used (Open).
84	TEX	—	Not used (Fixed at “L”).
85	XT	—	Not used (Fixed at “L”).
86	V_{SS}	—	Ground.
87	V_{DD}	—	Power supply pin (+2.8V).
88	NC	—	Not used (Fixed at “H”).
89	XCS ADA	O	A/D, D/A converter chip select output.
90	XPD ADA	O	A/D, D/A converter power down signal output. H : Power down
91	KEYON	O	SLEEP : L, action : H.
92	XNIMH DET	I	Battery detect switch input.
93	A MUTE	O	Analog mute control. H : Mute
94	OPT CTL	O	Power supply control output for an optical input.
95	XCE REG	—	Not used (Open).
96	XCE NV	O	EEPROM chip select output.
97	SENS	I	SENS input.
98	LDON	O	“H” : APC circuit ON, “L” : APC circuit OFF
99	SHOCK	I	Track jump detection input from IC503.
100	GND SW	O	Ground switch output.

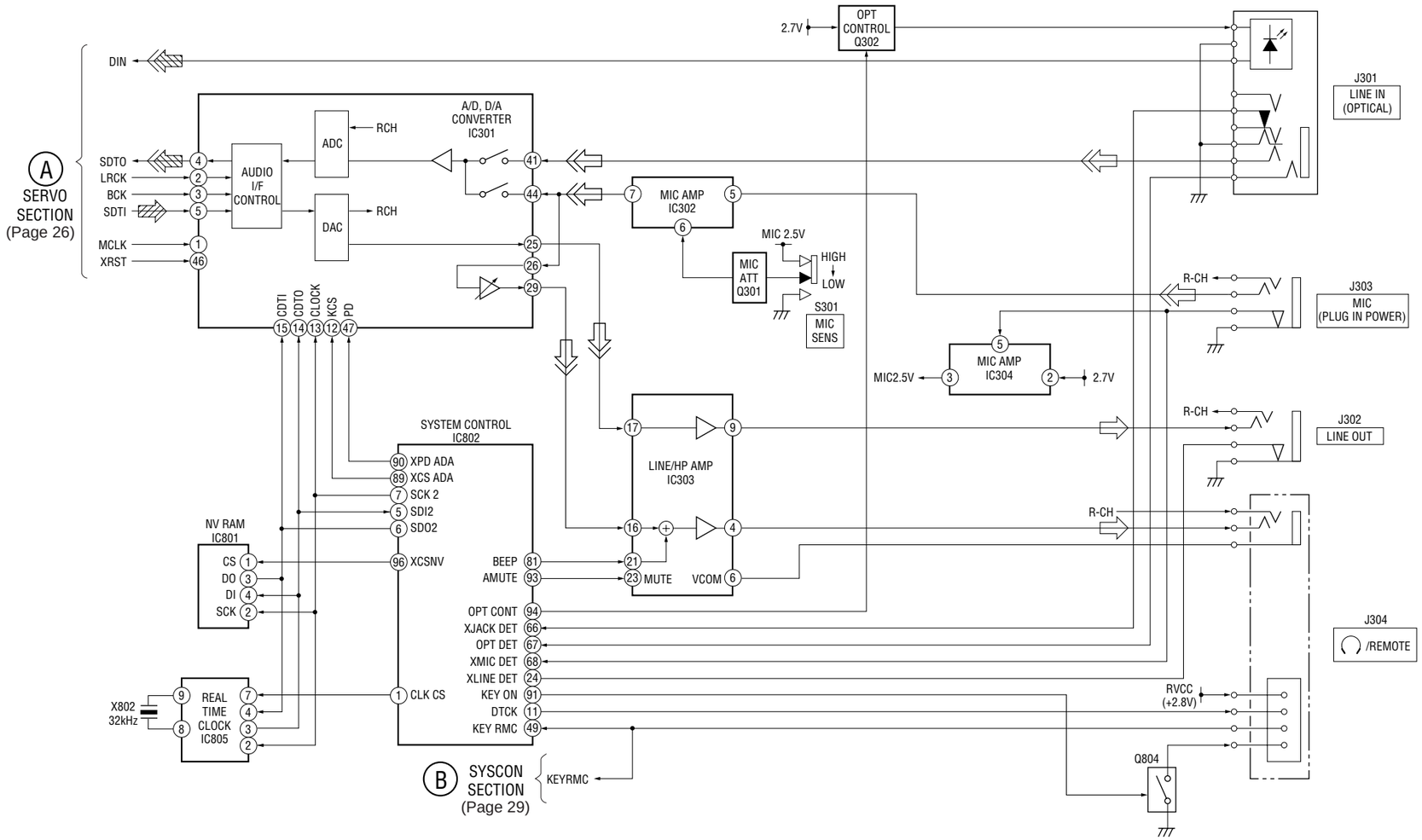
6-2. BLOCK DIAGRAM — SERVO SECTION —



04

- Signal path
  - : PLAY(DIGITAL)
  - : REC(DIGITAL)
- R-ch : same as L-ch.

6-3. BLOCK DIAGRAM — AUDIO SECTION —

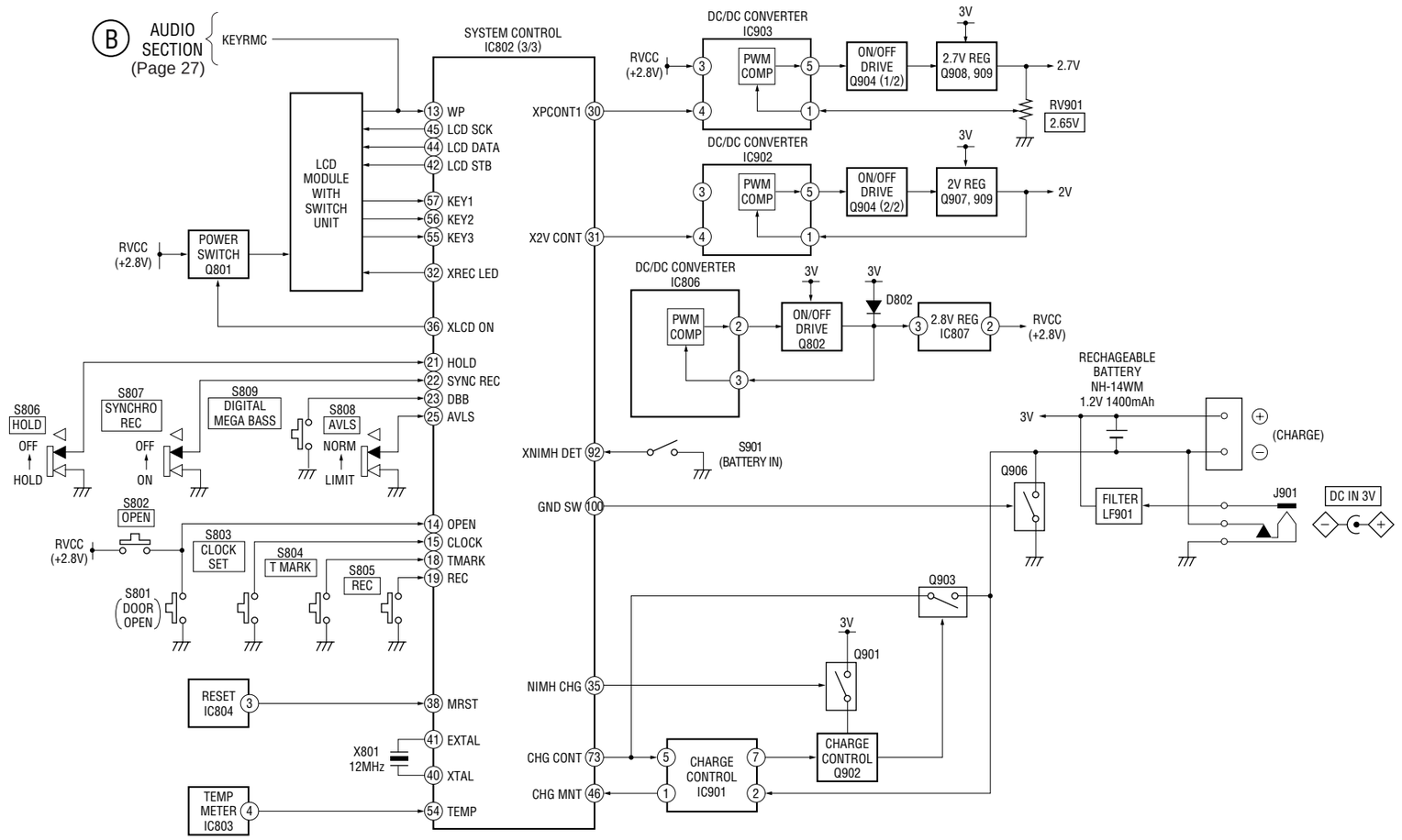


04

- Signal path
  - : PLAY(DIGITAL)
  - : REC(DIGITAL)
  - : PLAY(ANALOG)
  - : REC(ANALOG)

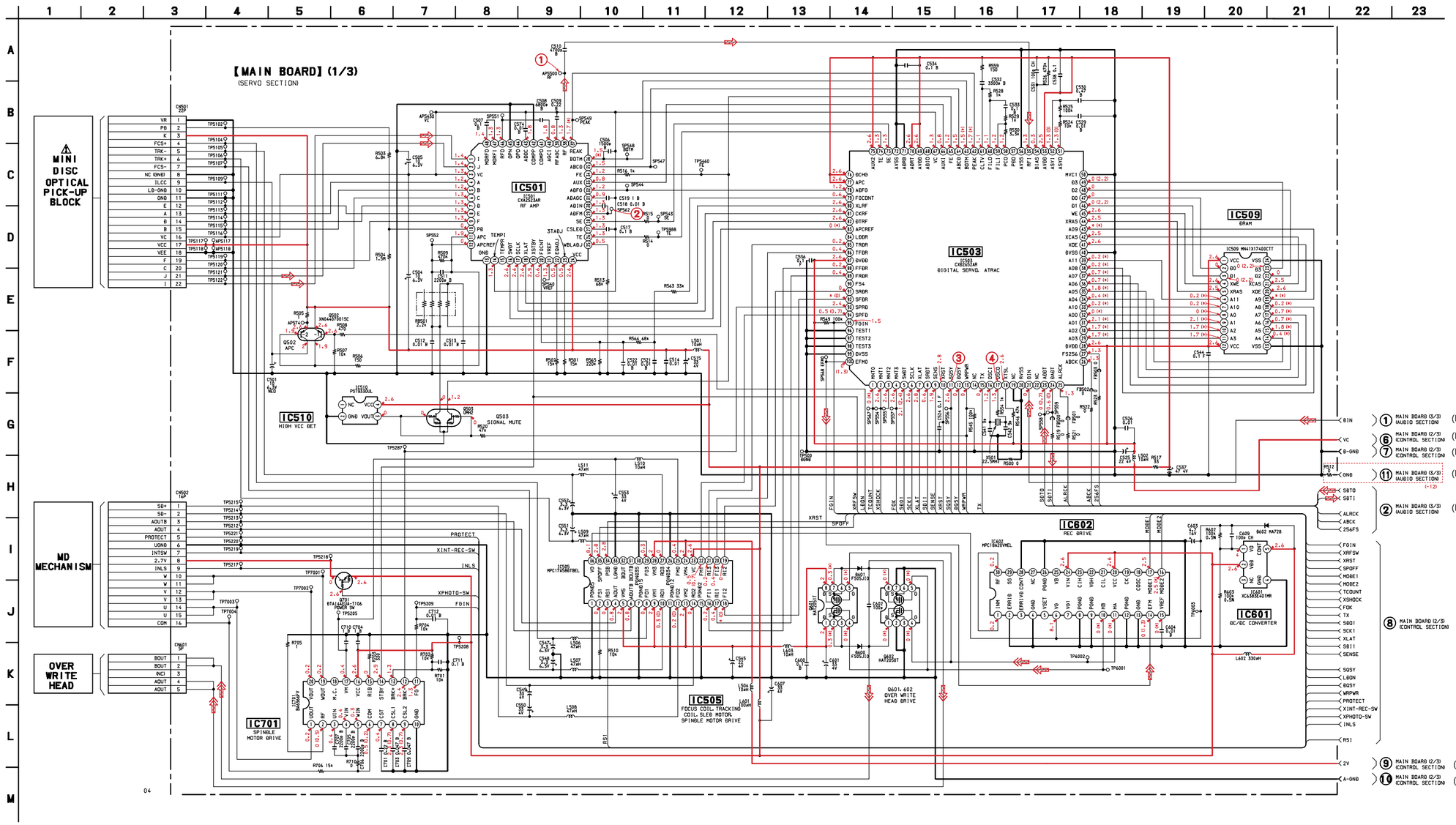
- R-ch : same as L-ch.

6-4. BLOCK DIAGRAM — SYSTEM CONTROL SECTION —



04

6-7. SCHEMATIC DIAGRAM — MAIN SECTION (1/3) — • Refer to page 46 for IC Block Diagrams.



• Waveforms

① VOLT/DIV : 0.5V AC
TIME/DIV : 1μsec
1.0±0.3Vp-p
IC501 (38)

② VOLT/DIV : 0.1V AC
TIME/DIV : 0.1msec
Approx. 0.5Vp-p
IC501 (29)

③ VOLT/DIV : 1V AC
TIME/DIV : 5msec
2.4Vp-p
13.4msec
IC503 (11)

④ VOLT/DIV : 1V AC
TIME/DIV : 20nsec
2.4Vp-p
22.5MHz
IC503 (17)

Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- % : indicates tolerance.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- ▬▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
  ✻ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : PB (digital)
  ⇨ : REC (digital)

6-8. SCHEMATIC DIAGRAM — MAIN SECTION (2/3) — • Refer to page 46 for IC Block Diagrams.

• **Waveforms**

⑤ VOLT/DIV : 1V AC
TIME/DIV : 20nsec

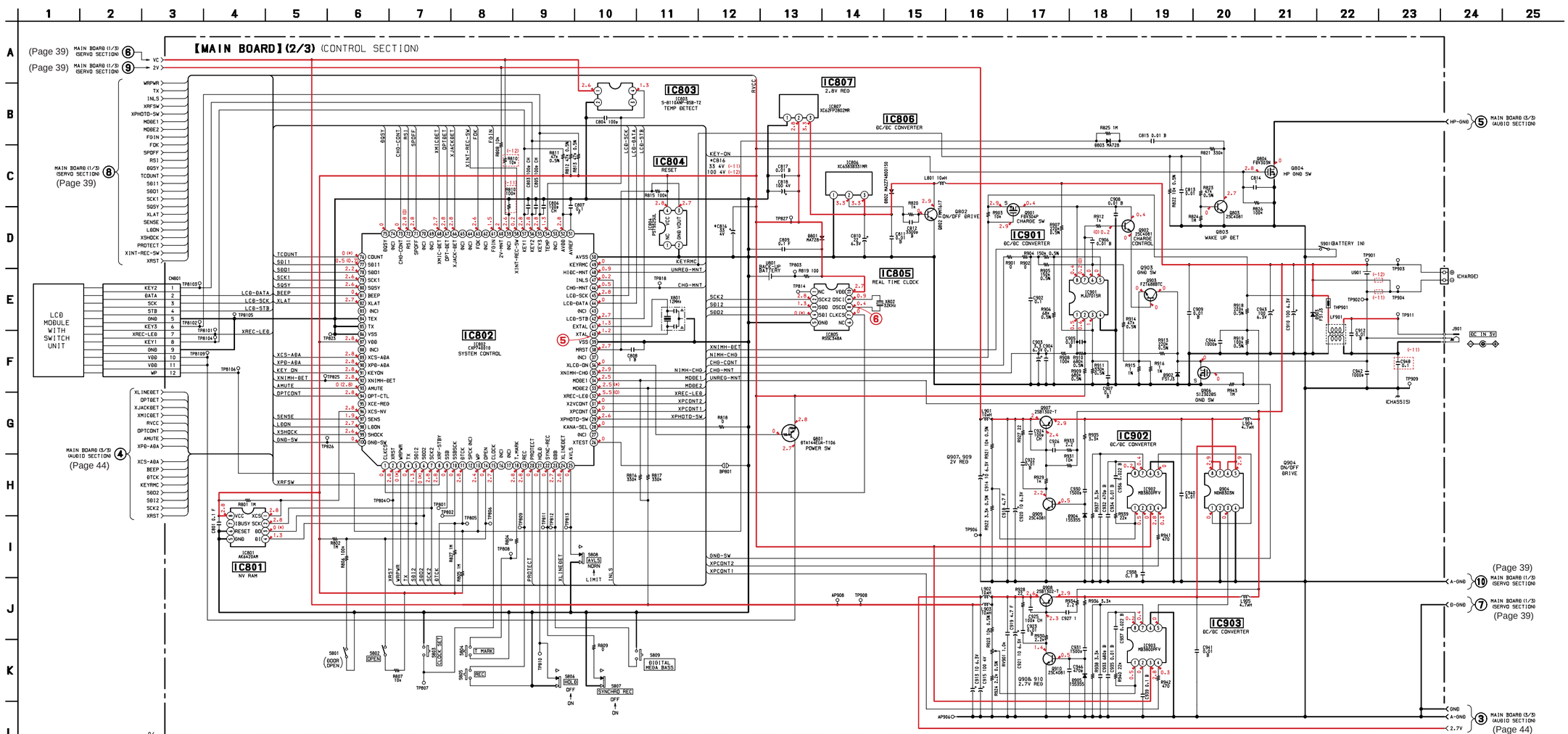
IC802 (40)

⑥ VOLT/DIV : 0.1V AC
TIME/DIV : 10µsec

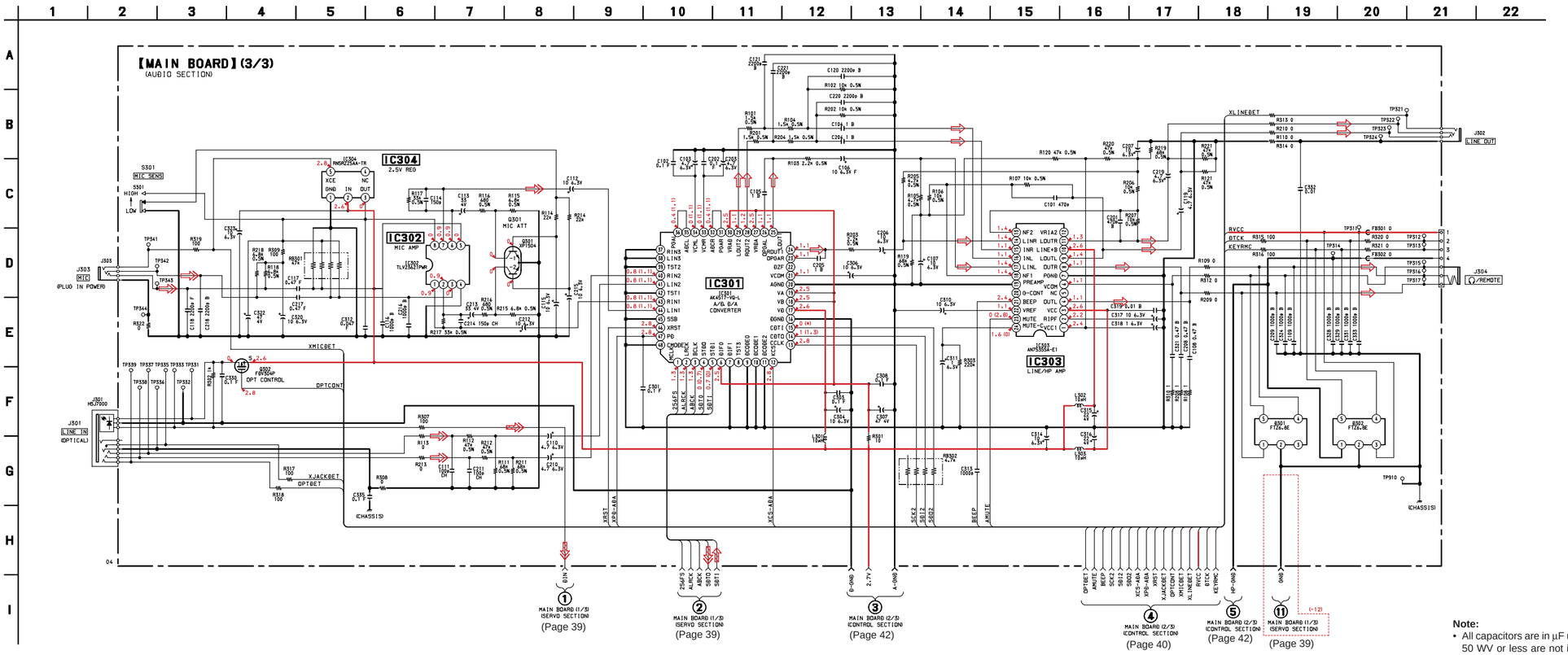
IC805 (8)

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.



6-9. SCHEMATIC DIAGRAM — MAIN SECTION (3/3) — • Refer to page 46 for IC Block Diagrams.

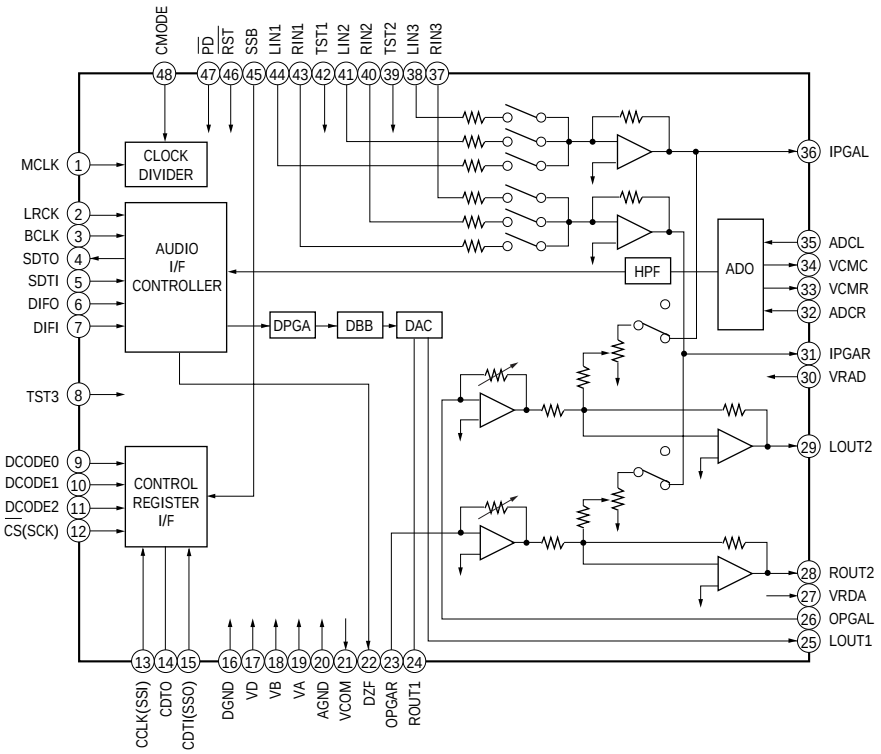


Note:

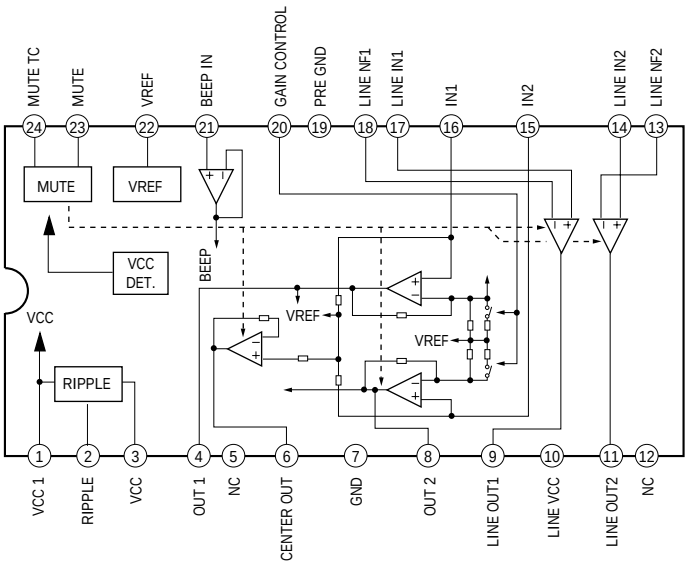
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PB (analog)
  ⇨ : REC (analog)
  ⇨ : PB (digital)
  ⇨ : REC (digital)

• **IC Block Diagrams**

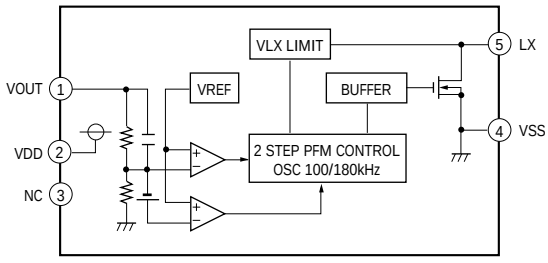
IC301 AK4517-VQ-L



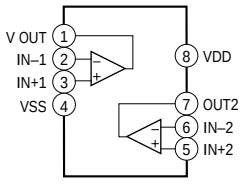
IC303 AN7535SA-E1



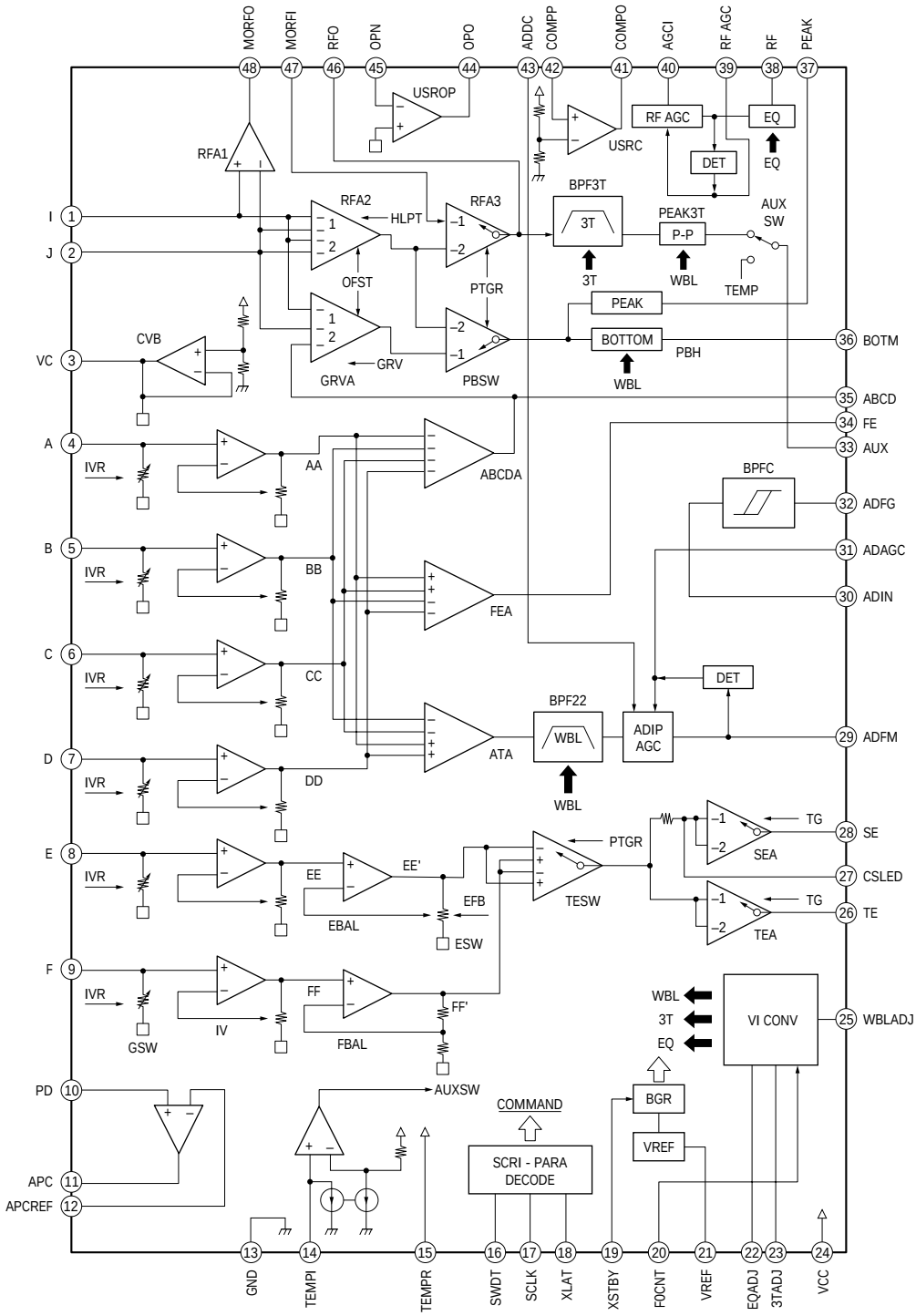
IC601 XC6383E401MR



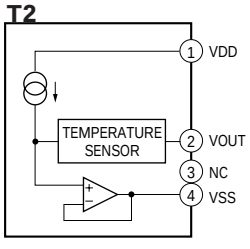
IC302 TLV23621PW



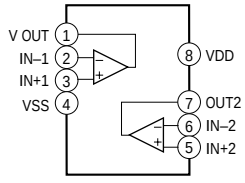
IC501 CXA2523AR



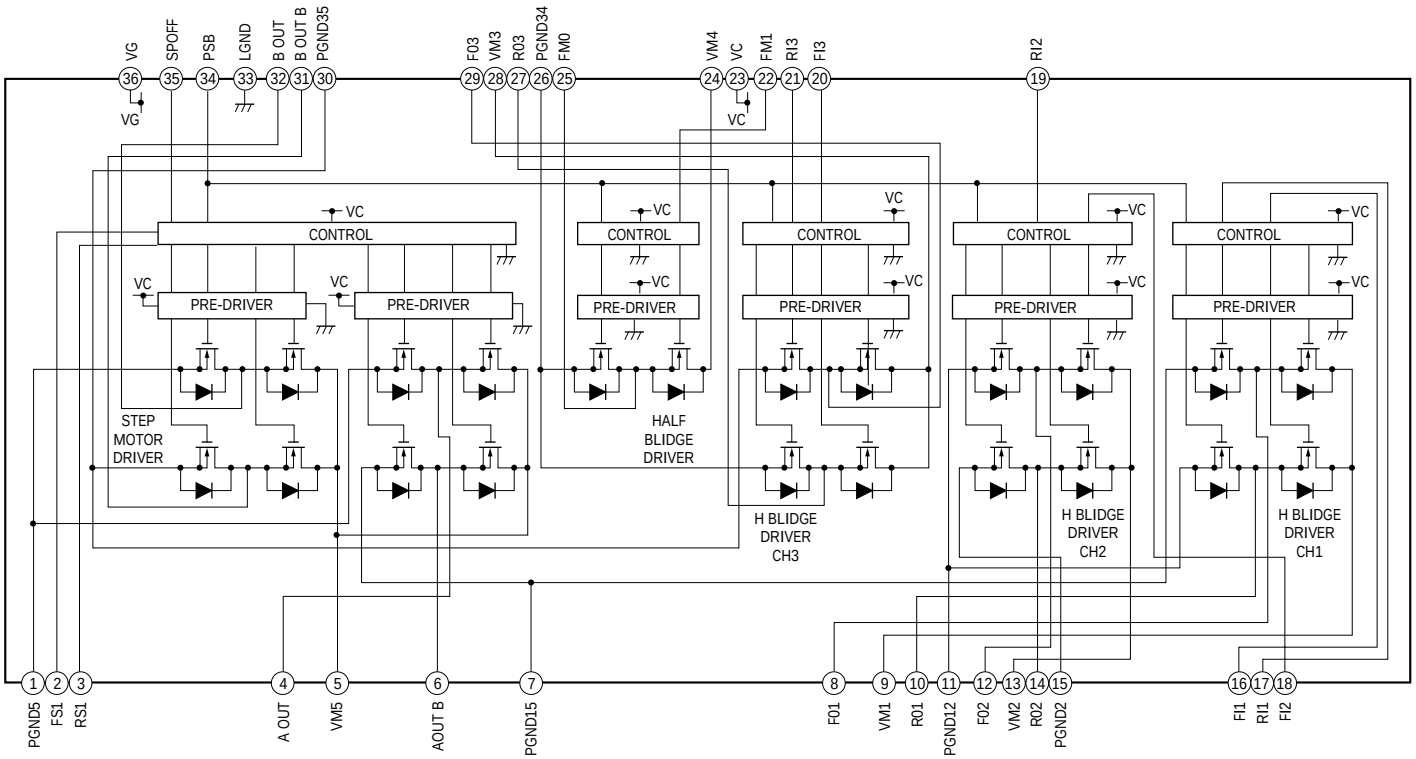
IC803 S-8110ANP-DSB-T2



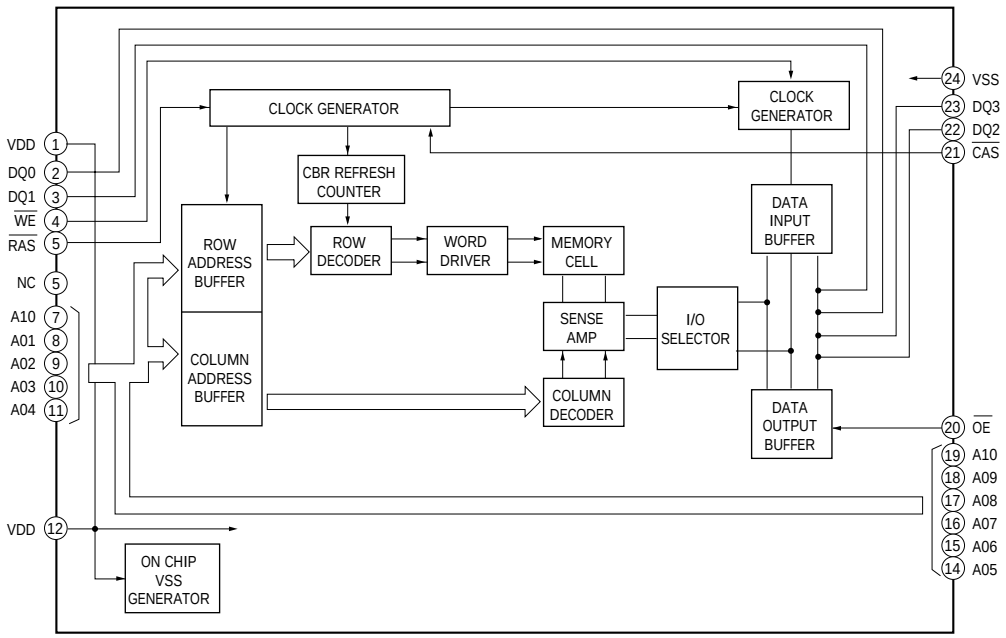
IC901 NJU7015M



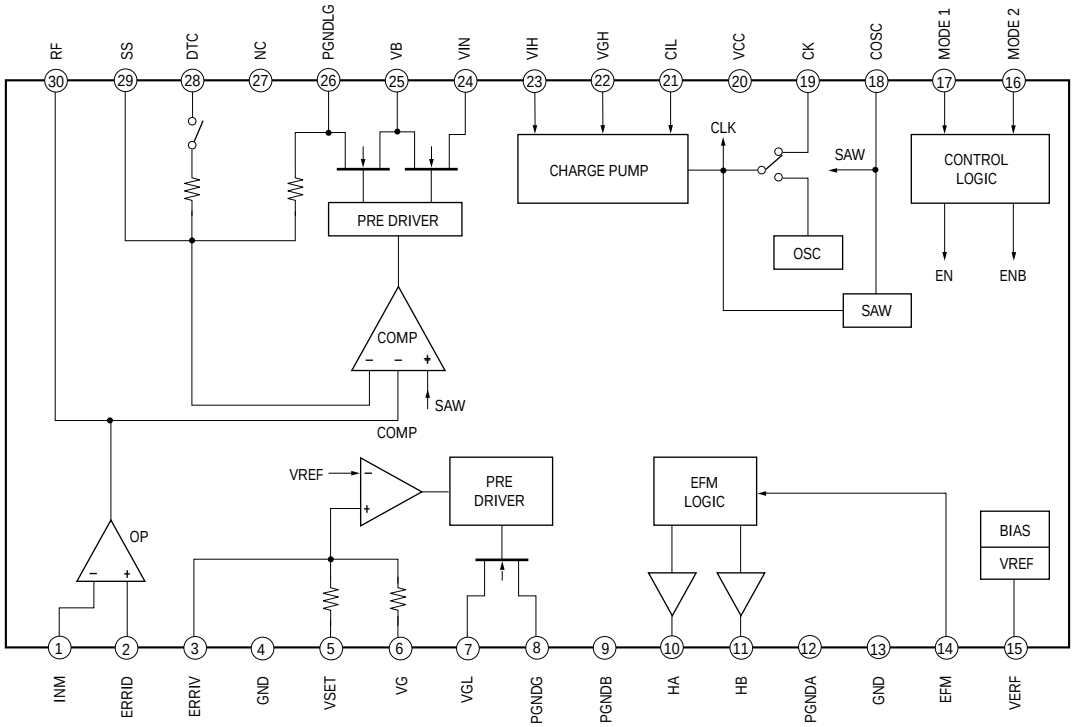
IC505 MPC17A58DTBEL



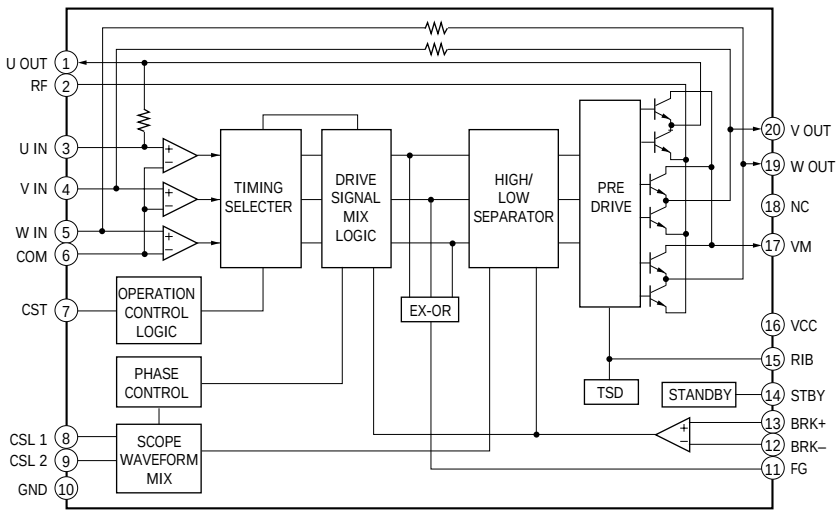
IC509 MN41X17400CTT



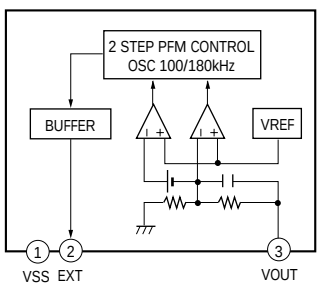
IC602 MPC18A20VMEL



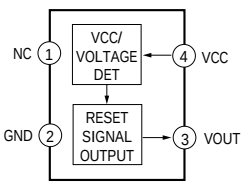
IC701 BA6966FV



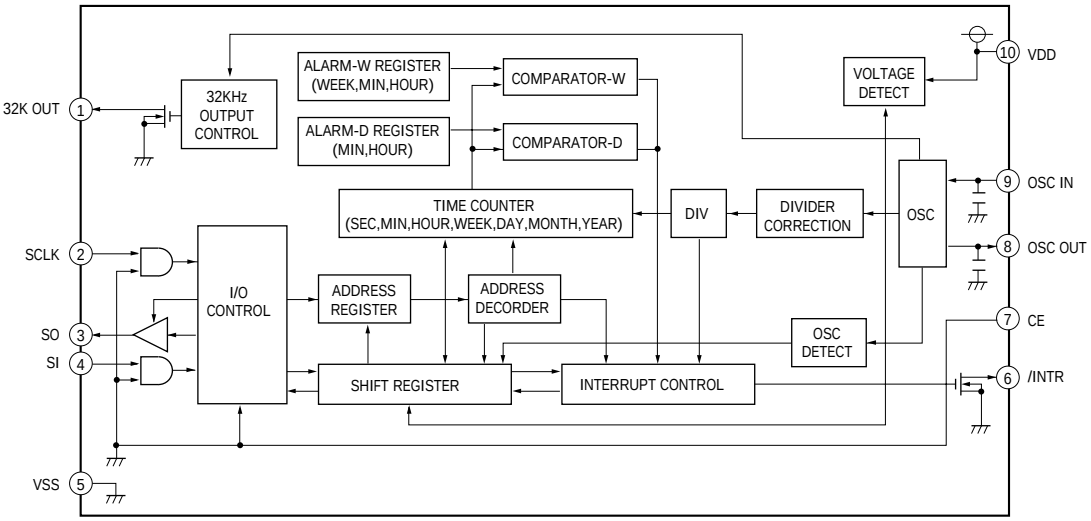
IC806 XC6383B331MR



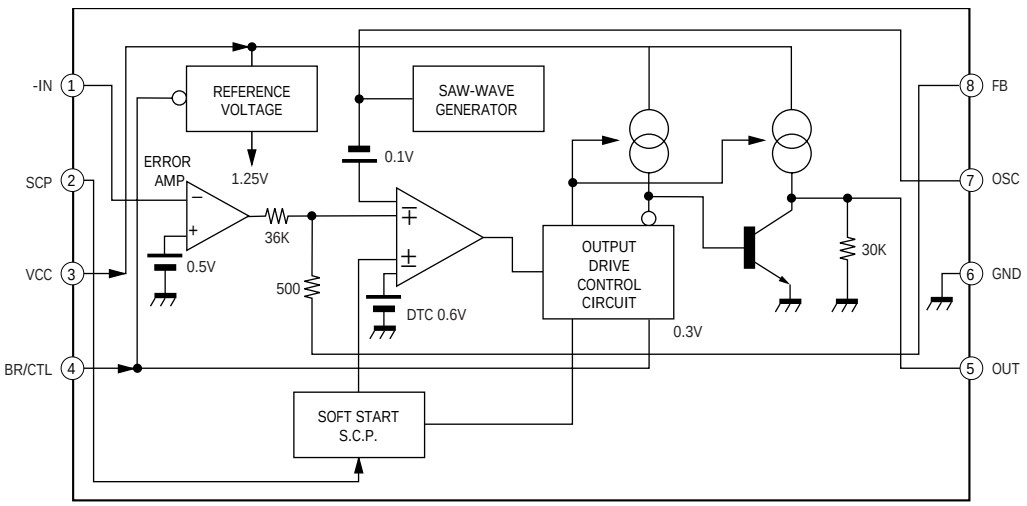
IC804 PST9325UL



IC805 RS5C348A



IC902, 903 MB3800-M03

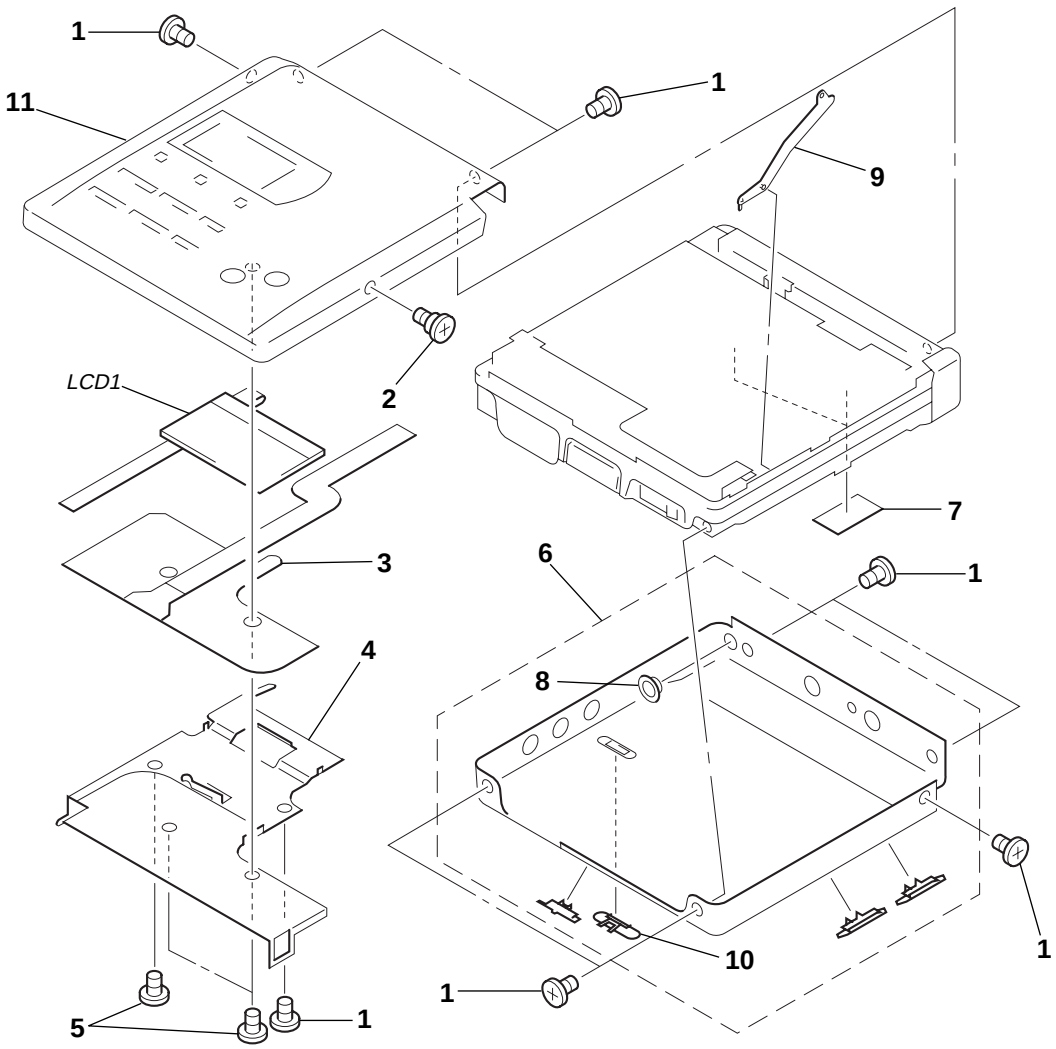


SECTION 7
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  JE : Tourist model
  HK : Hong Kong model
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.

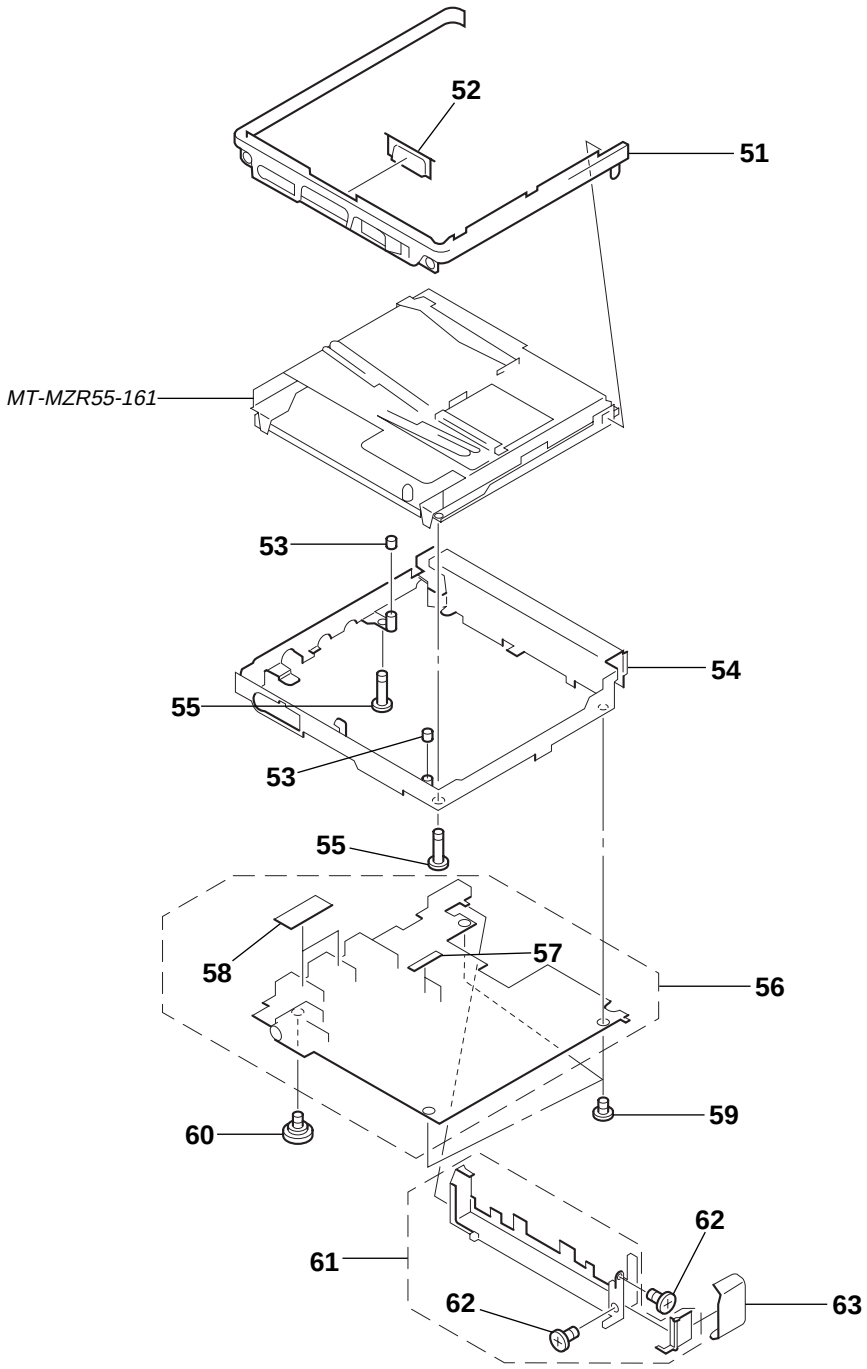
The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

7-1. PANEL SECTION



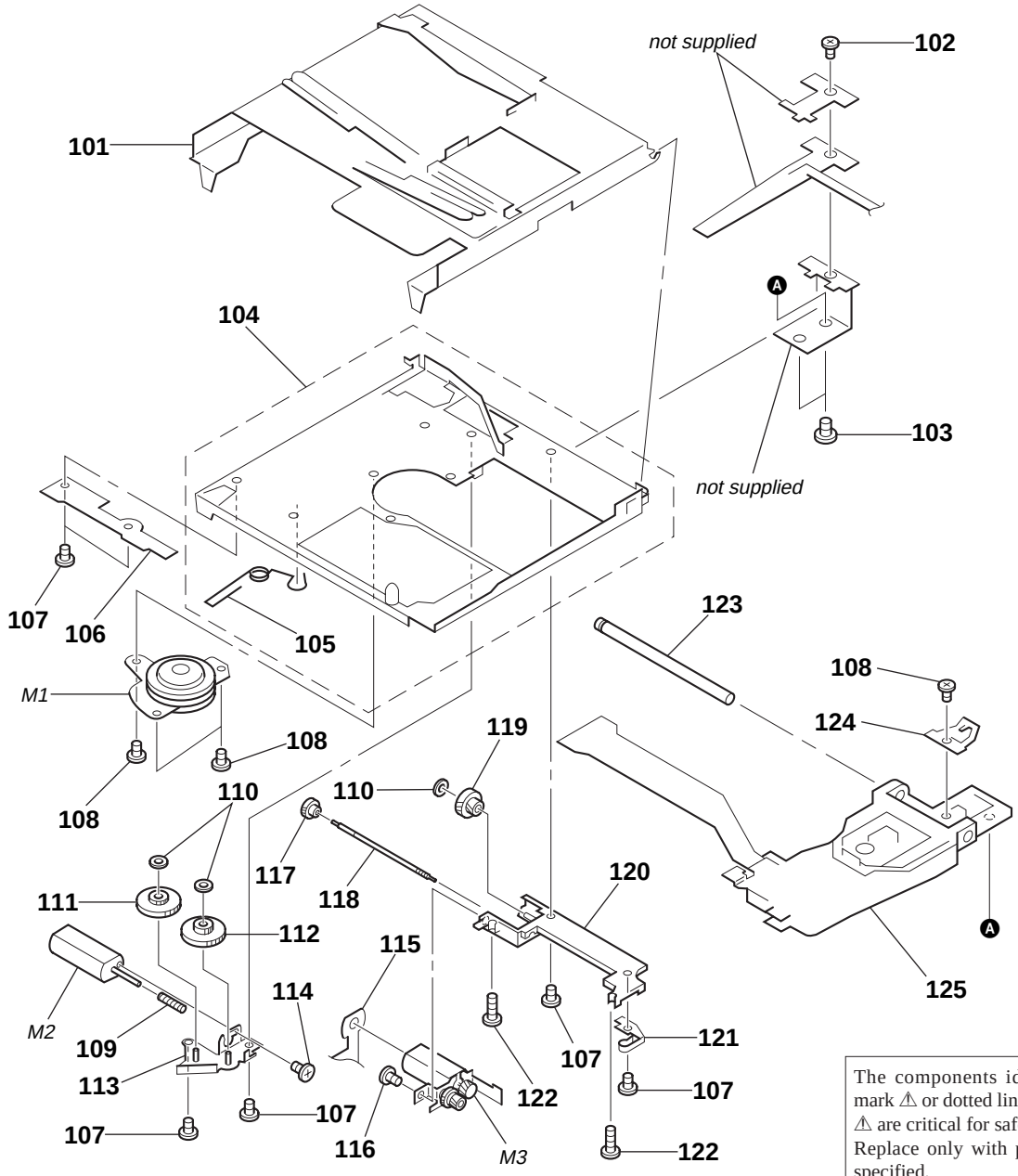
Ref. No.	Part No.	Description	Remark
1	4-963-883-21	SCREW (M1.4), PRECISION PAN	
2	4-212-847-01	SCREW (CLICK ARM), STEP	
3	1-803-307-11	SWITCH MODULE	
4	4-212-856-01	BRACKET (LCD)	
5	4-984-017-01	SCREW (1.7), TAPPING	
6	X-4950-399-1	PANEL (N) ASSY, BOTTOM (GOLD)	
6	X-4950-400-1	PANEL (L) ASSY, BOTTOM (BLUE)	
6	X-4950-401-1	PANEL (Y) ASSY, BOTTOM (YELLOW)	
7	4-213-809-01	SHEET (MIC)	
8	3-010-287-01	COLLAR (DC IN)	
9	X-4950-406-1	ARM ASSY, CLICK	
10	3-938-805-72	KNOB (DOLBY) (SILVER) ... (for GOLD, YELLOW)	
10	3-938-805-81	KNOB (DOLBY) (PURPLE) ... (for BLUE)	
11	X-4950-559-1	SERVICE ASSY, UPPER PANEL (N) (GOLD)	
11	X-4950-560-1	SERVICE ASSY, UPPER PANEL (L) (BLUE)	
11	X-4950-561-1	SERVICE ASSY, UPPER PANEL (Y) (YELLOW)	
LCD1	1-803-308-11	LCD MODULE	

7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
51	X-4950-398-1	BELT ASSY, ORNAMENTAL	
52	4-212-844-01	BUTTON (OPEN) (GOLD)	
52	4-212-844-11	BUTTON (OPEN) (SILVER) ... (for BLUE, YELLOW)	
53	4-212-820-01	DAMPER	
54	X-4950-396-1	CHASSIS (MAIN) ASSY	
55	4-212-821-01	SCREW (MD), STEP	
56	A-3323-076-A	MAIN BOARD, COMPLETE	
57	4-213-546-01	SHEET (CLV)	
58	4-213-809-01	SHEET (MIC)	
59	3-335-797-91	SCREW (M1.4), TOOTHED LOCK	
60	4-995-436-01	SCREW (HP), STEP	
61	X-4950-397-1	CASE ASSY, BATTERY	
62	4-963-883-21	SCREW (M1.4), PRECISION PAN	
63	4-212-824-01	LID, BATTERY CASE (GOLD)	
63	4-212-824-11	LID, BATTERY CASE (BLUE)	
63	4-212-824-21	LID, BATTERY CASE (YELLOW)	

7-3. MECHANISM DECK SECTION (MT-MZR55-161)



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
101	X-4950-391-1	HOLDER ASSY	
102	3-349-825-41	SCREW	
103	4-955-841-01	SCREW	
104	X-4950-390-1	CHASSIS ASSY	
105	4-995-585-01	SPRING (LIMITTER), TORSION	
106	1-418-079-11	PR UNIT	
107	4-963-883-41	SCREW (M1.4), PRECISION PAN	
108	4-963-883-01	SCREW (M1.4), PRECISION PAN	
109	4-212-308-01	GEAR, WORM	
110	3-338-645-31	WASHER (0.8-2.5)	
111	4-212-310-01	GEAR (RACK)	
112	4-212-309-01	GEAR (WORM WHEEL)	
113	X-4950-392-1	CHASSIS ASSY, GEAR	
114	4-212-862-01	SCREW (M1X1.3), PRECISION	
115	1-671-605-11	MD FLEXIBLE BOARD	
116	3-015-033-01	SCREW (DIA. 1.4X4), PRECISION	
117	4-995-586-01	GEAR (SD)	
118	4-213-858-01	SCREW, LEAD	
119	4-995-578-01	GEAR (SC)	
120	X-4949-131-1	BRACKET (S) ASSY	
121	4-995-571-01	SPRING, THRUST	
122	3-704-197-31	SCREW (M1.4X3.0), LOCKING	
123	4-212-312-01	SHAFT, MAIN	
124	4-995-570-01	SPRING, RACK	
⚠125	X-4950-546-1	SERVICE ASSY, OP	
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)	
M2	1-763-174-11	MOTOR, DC (LOADING)	
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED	

MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  JE : Tourist model
  HK : Hong Kong model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA.. : μA.. uPA.. : μPA..
  uPB.. : μPB.. uPC.. : μPC.. uPD.. : μPD..
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Board part number suffix
  -11 : Number suffix is -11
  -12 : Number suffix is -12

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3323-076-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C102	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C103	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C104	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C105	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C106	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C107	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C108	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C109	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C110	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C111	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C112	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C113	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C114	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C115	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C116	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C117	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C118	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C119	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C120	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C121	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C201	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C202	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C203	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C204	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C205	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C207	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C208	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C209	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C210	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C211	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C212	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C213	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C214	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C215	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C216	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C217	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C218	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C219	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C220	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C221	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C301	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C303	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C304	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C306	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C307	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C308	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C310	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C311	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C312	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C313	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C314	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C315	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C316	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C317	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C318	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C319	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C320	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C321	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C322	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C323	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C324	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C328	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C329	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C330	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C331	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C332	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C333	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C335	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C501	1-115-169-11	TANTALUM	10uF	20%	6.3V
C504	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C505	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C506	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C507	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C508	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C509	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C510	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C511	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C512	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C514	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C515	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C518	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remark
C519	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C522	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C524	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C525	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C526	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C529	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C530	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C531	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C532	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C533	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C534	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C536	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C537	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C538	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C541	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C542	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C544	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C545	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C547	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C548	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C549	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C550	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C551	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C552	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C553	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C574	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C600	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C601	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C602	1-109-813-11	CAP,CHIP	100PF	5%	100V
C603	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C604	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C607	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C609	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C701	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
* C703	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C704	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C705	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C706	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C707	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
* C709	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C710	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C712	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C801	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C803	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C804	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C805	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C806	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C807	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C808	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C809	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C810	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C811	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C812	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C813	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remark
C814	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C815	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C816	1-119-749-11	TANTAL. CHIP	33uF	20%	4V (-11)
C816	1-127-569-11	TANTAL. CHIP	100uF	20%	4V (-12)
C817	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C818	1-127-569-11	TANTAL. CHIP	100uF	20%	4V
C902	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C903	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C905	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C906	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C907	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C908	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C909	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C910	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C912	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C913	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C914	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C915	1-117-569-11	TANTAL. CHIP	100uF	20%	4V
C918	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C919	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C920	1-115-169-11	TANTALUM	10uF	20%	6.3V
C921	1-115-169-11	TANTALUM	10uF	20%	6.3V
C922	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C923	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C924	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C925	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C926	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C927	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C930	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C931	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C932	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C933	1-164-936-11	CERAMIC CHIP	680PF	10%	16V
C934	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C935	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C936	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C937	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C938	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C939	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C940	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C941	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C942	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C943	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C944	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C946	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C948	1-107-826-91	CERAMIC CHIP	0.1uF		16V (-11)
		< CONNECTOR >			
* CN501	1-764-504-21	CONNECTOR, FPC (ZIF) 22P			
CN502	1-778-164-21	CONNECTOR, FFC/FPC (ZIF) 16P			
CN601	1-778-711-11	CONNECTOR, FFC/FPC (ZIF) 5P			
CN801	1-778-160-11	CONNECTOR, FFC/FPC (ZIF) 12P			
		< DIODE >			
D301	8-719-066-17	DIODE FTZ6.8E-T148			

MAIN

Ref. No.	Part No.	Description	Remark
D302	8-719-066-17	DIODE FTZ6.8E-T148	
D600	8-719-072-10	DIODE FS05J10-TP	
D601	8-719-072-10	DIODE FS05J10-TP	
D602	8-719-421-27	DIODE MA728	
D801	8-719-421-27	DIODE MA728	
D802	8-719-072-27	DIODE MA2Z748001S0	
D803	8-719-421-27	DIODE MA728	
D902	8-719-072-26	DIODE FS1J3-TP	
D903	8-719-072-26	DIODE FS1J3-TP	
D904	8-719-988-62	DIODE 1SS355	
D905	8-719-988-62	DIODE 1SS355	
		< JUMPER RESISTOR >	
FB301	1-216-864-11	METAL CHIP 0 5% 1/16W	
FB302	1-216-864-11	METAL CHIP 0 5% 1/16W	
FB500	1-216-864-11	METAL CHIP 0 5% 1/16W	
FB501	1-216-864-11	METAL CHIP 0 5% 1/16W	
FB502	1-216-864-11	METAL CHIP 0 5% 1/16W	
FB503	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< IC >	
IC301	8-759-559-61	IC AK4517-VQ-L	
IC302	8-759-536-71	IC TLV23621PWR	
IC303	8-759-559-58	IC AN7535SA-E1	
IC304	8-759-559-91	IC RN5RZ25AA-TR	
IC501	8-752-080-95	IC CXA2523AR	
IC503	8-752-384-47	IC CXD2652AR	
IC505	8-759-559-60	IC MPC17A58DTBEL	
IC509	8-759-559-57	IC MN41X17400CTT-10T1	
IC510	8-759-487-20	IC PST9330UL	
IC601	8-759-559-94	IC XC6383E401MR	
IC602	8-759-329-43	IC MPC18A20VM	
IC701	8-759-559-62	IC BA6966FV-E2	
IC801	8-759-468-72	IC AK6420AM-E2	
IC802	8-752-897-08	IC CXP740010-008R	
IC803	8-759-559-93	IC S-8110ANP-DSB-T2	
IC804	8-759-559-95	IC PST9325UL	
IC805	8-759-560-17	IC RS5C348A-E2	
IC806	8-759-530-10	IC XC6383B331MR	
IC807	8-759-569-24	IC XC62FP2802MR	
IC901	8-759-559-89	IC NJU7015R-TE2	
IC902	8-759-427-21	IC MB3800PFV-G-BND-EF	
IC903	8-759-427-21	IC MB3800PFV-G-BND-EF	
J301	8-749-015-08	IC SJ7000 (LINE IN (OPTICAL))	
		< JACK >	
J302	1-779-881-11	JACK (LINE OUT)	
J303	1-779-881-21	JACK (MIC)	
J304	1-778-179-11	JACK (🎧/REMOTE)	
J901	1-785-383-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 3V)

Ref. No.	Part No.	Description	Remark
		< COIL >	
L301	1-414-754-11	INDUCTOR 10uH	
L302	1-414-754-11	INDUCTOR 10uH	
L303	1-414-754-11	INDUCTOR 10uH	
L501	1-414-398-41	INDUCTOR 10uH	
L502	1-414-398-41	INDUCTOR 10uH	
L504	1-414-398-41	INDUCTOR 10uH	
L506	1-410-389-31	INDUCTOR CHIP 47uH	
L507	1-410-389-31	INDUCTOR CHIP 47uH	
L508	1-410-389-31	INDUCTOR CHIP 47uH	
L509	1-410-389-31	INDUCTOR CHIP 47uH	
L510	1-414-398-41	INDUCTOR 10uH	
L511	1-410-389-31	INDUCTOR CHIP 47uH	
L601	1-414-404-41	INDUCTOR 100uH	
L602	1-412-330-41	INDUCTOR 330uH	
L603	1-414-398-41	INDUCTOR 10uH	
L801	1-414-398-41	INDUCTOR 10uH	
L901	1-414-398-41	INDUCTOR 10uH	
L902	1-414-398-41	INDUCTOR 10uH	
L903	1-414-398-41	INDUCTOR 10uH	
L904	1-424-673-41	COIL, CHOKE 4.7uH	
L905	1-424-673-41	COIL, CHOKE 4.7uH	
		< EMI FILTER >	
LF901	1-416-405-21	FILTER, CHIP EMI (COMMON MODE)	
		< TRANSISTOR >	
Q301	8-729-012-88	TRANSISTOR XP1504-(TX)	
Q302	8-729-046-49	TRANSISTOR FDV304P	
Q502	8-729-046-46	TRANSISTOR XN04407001SO	
Q503	8-729-930-13	TRANSISTOR UMH2	
Q601	8-729-046-43	TRANSISTOR HAT2051T-EL	
Q602	8-729-046-42	TRANSISTOR HAT2050T-EL	
Q701	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q801	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q802	8-729-041-51	TRANSISTOR FMMT617TA	
Q803	8-729-905-35	TRANSISTOR 2SC4081-R	
Q804	8-729-046-48	TRANSISTOR FDV303N	
Q901	8-729-046-49	TRANSISTOR FDV304P	
Q902	8-729-905-35	TRANSISTOR 2SC4081-R	
Q903	8-729-047-10	TRANSISTOR FZT688BTC	
Q904	8-729-046-50	TRANSISTOR NDH8303N	
Q906	8-729-046-45	TRANSISTOR SI2302DS-T1	
Q907	8-729-822-62	TRANSISTOR 2SB1302-T	
Q908	8-729-822-62	TRANSISTOR 2SB1302-T	
Q909	8-729-905-35	TRANSISTOR 2SC4081-R	
Q910	8-729-905-35	TRANSISTOR 2SC4081-R	
		< RESISTOR >	
R101	1-218-851-11	RES, CHIP 1.5K 0.50% 1/16W	
R102	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R103	1-218-855-11	RES, CHIP 2.2K 0.50% 1/16W	

Ref. No.	Part No.	Description			Remark
R104	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R105	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R106	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R107	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R108	1-218-446-11	METAL CHIP	1	5%	1/16W
R109	1-216-864-11	METAL CHIP	0	5%	1/16W
R110	1-216-864-11	METAL CHIP	0	5%	1/16W
R111	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R112	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R113	1-216-864-11	METAL CHIP	0	5%	1/16W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W
R115	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R116	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R117	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R118	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R119	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R120	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R121	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R201	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R202	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R203	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R204	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R205	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R206	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R207	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R208	1-218-446-11	METAL CHIP	1	5%	1/16W
R209	1-216-864-11	METAL CHIP	0	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R211	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R212	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R213	1-216-864-11	METAL CHIP	0	5%	1/16W
R214	1-216-837-11	METAL CHIP	22K	5%	1/16W
R215	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R216	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R217	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R218	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R219	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R220	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R221	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R301	1-216-797-11	METAL CHIP	10	5%	1/16W
R302	1-216-821-11	METAL CHIP	1K	5%	1/16W
R303	1-216-849-11	METAL CHIP	220K	5%	1/16W
R307	1-216-809-11	METAL CHIP	100	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R309	1-216-809-11	METAL CHIP	100	5%	1/16W
R310	1-218-446-11	METAL CHIP	1	5%	1/16W
R312	1-216-864-11	METAL CHIP	0	5%	1/16W
R313	1-216-864-11	METAL CHIP	0	5%	1/16W
R314	1-216-864-11	METAL CHIP	0	5%	1/16W
R315	1-216-809-11	METAL CHIP	100	5%	1/16W
R316	1-216-809-11	METAL CHIP	100	5%	1/16W
R317	1-216-809-11	METAL CHIP	100	5%	1/16W
R318	1-216-809-11	METAL CHIP	100	5%	1/16W

Ref. No.	Part No.	Description			Remark
R319	1-216-809-11	METAL CHIP	100	5%	1/16W
R320	1-216-864-11	METAL CHIP	0	5%	1/16W
R321	1-216-864-11	METAL CHIP	0	5%	1/16W
R322	1-216-864-11	METAL CHIP	0	5%	1/16W
R500	1-216-864-11	METAL CHIP	0	5%	1/16W
R501	1-216-835-11	METAL CHIP	15K	5%	1/16W
R502	1-216-835-11	METAL CHIP	15K	5%	1/16W
R503	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R504	1-216-859-11	RES, CHIP	1.5M	5%	1/16W
R505	1-218-446-11	METAL CHIP	1	5%	1/16W
R506	1-216-811-11	METAL CHIP	150	5%	1/16W
R507	1-216-833-11	METAL CHIP	10K	5%	1/16W
R508	1-216-817-11	METAL CHIP	470	5%	1/16W
R509	1-216-853-11	METAL CHIP	470K	5%	1/16W
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-864-11	METAL CHIP	0	5%	1/16W
					(-12)
R513	1-216-843-11	METAL CHIP	68K	5%	1/16W
R514	1-216-864-11	METAL CHIP	0	5%	1/16W
R515	1-216-864-11	METAL CHIP	0	5%	1/16W
R516	1-216-821-11	METAL CHIP	1K	5%	1/16W
R517	1-216-803-11	METAL CHIP	33	5%	1/16W
R519	1-216-864-11	METAL CHIP	0	5%	1/16W
R520	1-216-841-11	METAL CHIP	47K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W
R522	1-216-864-11	METAL CHIP	0	5%	1/16W
R523	1-216-864-11	METAL CHIP	0	5%	1/16W
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-853-11	METAL CHIP	470K	5%	1/16W
R528	1-216-821-11	METAL CHIP	1K	5%	1/16W
R529	1-216-821-11	METAL CHIP	1K	5%	1/16W
R530	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R545	1-216-845-11	METAL CHIP	100K	5%	1/16W
R546	1-216-841-11	METAL CHIP	47K	5%	1/16W
R549	1-216-845-11	METAL CHIP	100K	5%	1/16W
R554	1-216-821-11	METAL CHIP	1K	5%	1/16W
R559	1-216-811-11	METAL CHIP	150	5%	1/16W
R563	1-216-839-11	METAL CHIP	33K	5%	1/16W
R564	1-216-843-11	METAL CHIP	68K	5%	1/16W
R565	1-216-849-11	METAL CHIP	220K	5%	1/16W
R602	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R603	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R702	1-216-833-11	METAL CHIP	10K	5%	1/16W
R703	1-216-815-11	METAL CHIP	330	5%	1/16W
R704	1-216-833-11	METAL CHIP	10K	5%	1/16W
R705	1-219-724-11	METAL CHIP	1	1%	1/4W
R706	1-216-835-11	METAL CHIP	15K	5%	1/16W
R710	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-857-11	METAL CHIP	1M	5%	1/16W
R802	1-216-857-11	METAL CHIP	1M	5%	1/16W
R804	1-216-864-11	METAL CHIP	0	5%	1/16W
R805	1-216-857-11	METAL CHIP	1M	5%	1/16W

MAIN

Ref. No.	Part No.	Description			Remark
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W
R807	1-216-833-11	METAL CHIP	10K	5%	1/16W
R808	1-216-833-11	METAL CHIP	10K	5%	1/16W
R809	1-216-864-11	METAL CHIP	0	5%	1/16W
R810	1-216-845-11	METAL CHIP	100K	5%	1/16W (-11)
R810	1-216-833-11	METAL CHIP	10K	5%	1/16W (-12)
R811	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R812	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R813	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R815	1-216-845-11	METAL CHIP	100K	5%	1/16W
R816	1-216-851-11	METAL CHIP	330K	5%	1/16W
R817	1-216-851-11	METAL CHIP	330K	5%	1/16W
R818	1-216-864-11	METAL CHIP	0	5%	1/16W
R819	1-216-809-11	METAL CHIP	100	5%	1/16W
R820	1-216-821-11	METAL CHIP	1K	5%	1/16W
R821	1-216-851-11	METAL CHIP	330K	5%	1/16W
R822	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R823	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R824	1-216-857-11	METAL CHIP	1M	5%	1/16W
R825	1-216-857-11	METAL CHIP	1M	5%	1/16W
R826	1-216-845-11	METAL CHIP	100K	5%	1/16W
R827	1-216-857-11	METAL CHIP	1M	5%	1/16W
R901	1-216-864-11	METAL CHIP	0	5%	1/16W
R902	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-833-11	METAL CHIP	10K	5%	1/16W
R904	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R905	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R906	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R907	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W
R909	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R910	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R911	1-218-907-11	RES, CHIP	330K	0.50%	1/16W
R912	1-216-821-11	METAL CHIP	1K	5%	1/16W
R913	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R914	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R915	1-219-724-11	METAL CHIP	1	1%	1/4W
R916	1-219-724-11	METAL CHIP	1	1%	1/4W
R918	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R919	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R921	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R922	1-218-859-11	RES, CHIP	3.3K	0.50%	1/16W
R923	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R924	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R927	1-216-801-11	METAL CHIP	22	5%	1/16W
R928	1-216-801-11	METAL CHIP	22	5%	1/16W
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W
R930	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R931	1-216-833-11	METAL CHIP	10K	5%	1/16W
R933	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R934	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R935	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R936	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R937	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R938	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R939	1-216-837-11	METAL CHIP	22K	5%	1/16W
R940	1-216-837-11	METAL CHIP	22K	5%	1/16W
R941	1-216-817-11	METAL CHIP	470	5%	1/16W
R942	1-216-817-11	METAL CHIP	470	5%	1/16W
R943	1-216-857-11	METAL CHIP	1M	5%	1/16W
		< NETWORK RESISTOR >			
RB301	1-233-971-11	RES, NETWORK (CHIP TYPE)	47K		
RB302	1-233-965-11	RES, NETWORK (CHIP TYPE)	4.7K		
RB501	1-233-963-21	RES, NETWORK (CHIP TYPE)	2.2K		
		< VARIABLE RESISTOR >			
RV901	1-223-991-21	RES, CARBON ADJ	1K		
		< SWITCH >			
S301	1-762-078-11	SWITCH, SLIDE (MIC SENS)			
S801	1-762-805-21	SWITCH, PUSH (1 KEY) (DOOR OPEN)			
S802	1-572-467-61	SWITCH, PUSH (1 KEY) (OPEN)			
S803	1-572-921-11	SWITCH, KEY BOARD (CLOCK SET)			
S804	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (T MARK)			
S805	1-771-331-41	SWITCH, PUSH (1 KEY) (REC)			
S806	1-762-078-11	SWITCH, SLIDE (HOLD)			
S807	1-762-078-11	SWITCH, SLIDE (SYNCHRO REC)			
S808	1-762-078-11	SWITCH, SLIDE (AVLS)			
S809	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (DIGITAL MEGA BASS)			
S901	1-771-331-41	SWITCH, PUSH (1 KEY) (BATTERY IN)			
		< THERMISTOR >			
THP901	1-533-817-21	THERMISTOR			
		< BATTERY >			
* U801	1-528-924-11	BATTERY			
		< VIBRATOR >			
X501	1-767-498-11	OSCILLATOR, CRYSTAL (22.5MHz)			
X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)			
X802	1-579-886-11	VIBRATOR, CRYSTAL (32kHz)			
**********					
		MISCELLANEOUS			
		**********			
3	1-803-307-11	SWITCH MODULE			
106	1-418-079-11	PR UNIT			
115	1-671-605-11	MD FLEXIBLE BOARD			
⚠125	X-4950-546-1	SERVICE ASSY, OP			
LCD1	1-803-308-11	LCD MODULE			
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)			
M2	1-763-174-11	MOTOR, DC (LOADING)			
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED			
**********					

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-418-002-11	REMOTE CONTROL UNIT (RM-MZR55)	
⚠	1-418-028-11	ADAPTOR, AC (AC-MZR55) (JE)	
⚠	1-418-049-11	ADAPTOR, AC (AC-MZR55) (HK)	
	1-528-842-11	BATTERY, NICKEL HYDROGEN (NH-14WM)	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
	1-759-693-11	CASE, BATTERY	
	3-008-521-01	CASE, BATTERY CHARGE	
	3-864-987-11	MANUAL, INSTRUCTION (GREEK,SPANISH, PORTUGUESE,SWEDISH,FINNISH) (JE)	
	3-864-987-21	MANUAL, INSTRUCTION (ENGLISH) (HK)	
	3-864-987-41	MANUAL, INSTRUCTION (CHINESE,KOREAN, URDU)	
	4-213-808-01	CARD	
	4-972-888-01	CASE, CARRYING	
	8-953-218-90	HEADPHONE MDR-E838SP//K SET	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

9-924-964-11

Sony Corporation
Personal A&V Products Company

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(Shibaura)

MZ-R55

SERVICE MANUAL

US Model
E Model
Tourist Model

Self Diagnosis Supported model

Ver 1.1 1999. 01

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MT-MZR55-161
Optical Pick-up Type	KMS-280A

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: continuous
Laser output: less than 44.6 μW
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time
Maximum 74 minutes (MDW-74, stereo recording)
Maximum 148 minutes (MDW-74, monaural recording)

Revolutions
400 rpm to 900 rpm (CLV)

Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency
44.1 kHz

Sampling rate converter
Input: 32 kHz / 44.1 kHz / 48 kHz

Coding
Adaptive TRansform Acoustic Coding (ATRAC)

Modulation system
EFM (Eight to Fourteen Modulation)

Number of channels
2 stereo channels
1 monaural channel

Frequency response
20 to 20,000 Hz ± 3 dB

Wow and Flutter
Below measurable limit

Inputs
Microphone: stereo mini-jack, 0.22-0.78 mV
Line in: stereo mini-jack, 69-194 mV
Optical (Digital) in: optical (digital) mini-jack

Outputs
Headphones: stereo mini-jack, maximum output level 5 mW+ 5 mW, load impedance 16 ohm
Line out: stereo mini-jack, 194 mV, load impedance 10 kilohm

General

Power requirements
Sony AC Power Adaptor (supplied)
connected at the DC IN 3V jack:
- 120 V AC, 60 Hz (US model)
- 220-240 V AC, 50/60 Hz (Hong Kong model)
- 100-240 V AC, 50/60 Hz (Tourist model)

Nickel metal hydride rechargeable battery NH-14WM (supplied)
Two LR6 (size AA) alkaline batteries (not supplied)

– Continued on next page –

PORTABLE MINIDISC RECORDER

MICROFILM

SONY®

Battery operation time

Batteries	Recording	Playback
NH-14WM nickel metal hydride rechargeable battery	Approx. 2.5 hours	Approx. 4 hours
Two LR6 (SG) Sony alkaline dry batteries	Approx. 5 hours	Approx. 10 hours
NH-14WM + Two LR6 (SG)	Approx. 9.5 hours	Approx. 16 hours

Dimensions

Approx. 78.9 × 18.9 × 84 mm (w/h/d)
(3 1/8 × 3/4 × 3 3/8 in.)

Mass

Approx. 147 g (5.2 oz) the recorder only
Approx. 190 g (6.7 oz) incl. a recordable MD,
and NH-14WM nickel metal hydride rechargeable battery

Supplied accessories

AC power adaptor AC-MZR55 (1)
Headphones with a remote control
MDR-A34SP (US model)/MDR-E838SP (Hong Kong, Tourist model)
and RM-MZR55 (1)
NH-14WM nickel metal hydride rechargeable battery (1)
Dry battery case (1)
Rechargeable battery carrying case (1)
Carrying pouch (1)
AC plug adaptor (1) (Tourist model only)

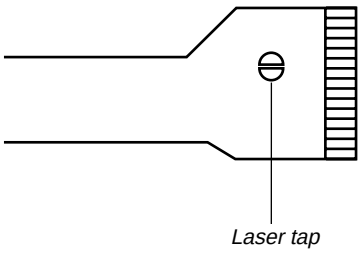
Design and specifications are subject to change without notice.

Precautions for Laser Diode Emission Check

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

Precautions for Using Optical Pick-up (KMS-280A)

As the laser diode inside the optical pick-up damages by static electricity easily, solder the laser tap of the Optical pick-up flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the Optical pick-up flexible board with care as it breaks easily.



Optical Pick-up flexible board

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

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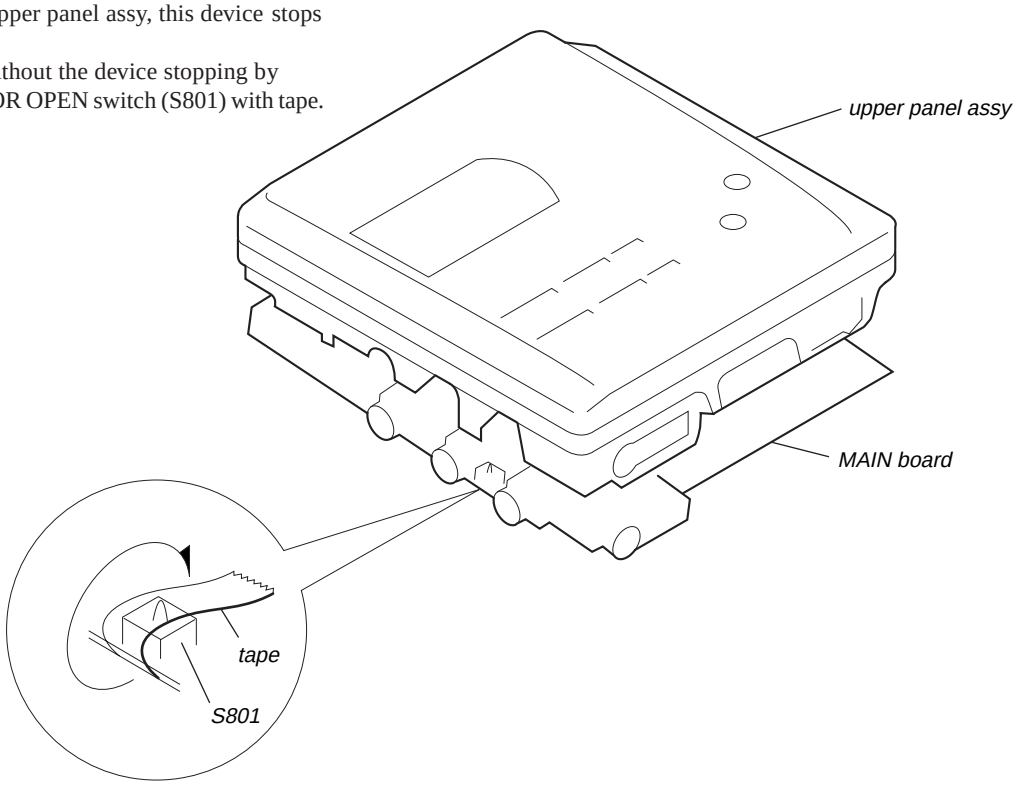
SERVICING NOTE

1) When repairing this device with the power on, if you remove the main board or open the upper panel assy, this device stops working.
In this case, you can work without the device stopping by fastening the hook of the DOOR OPEN switch (S801) with tape.



2) This set is designed to perform automatic adjustment for each adjustment and write its value to EEPROM. Therefore, when EEPROM (IC801) has been replaced in service, be sure to perform automatic adjustment and write resultant values to the new EEPROM.
Refer to page 12 for details.

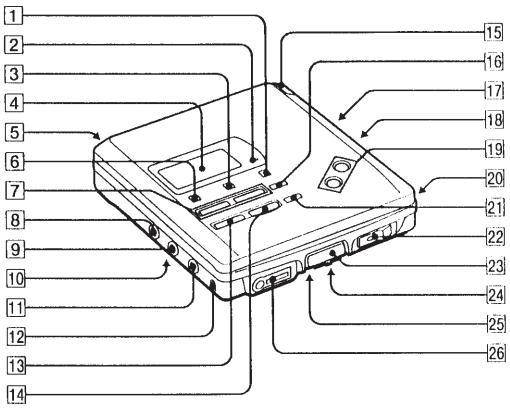
SECTION 1
GENERAL

This section is extracted from instruction manual.

Looking at the controls

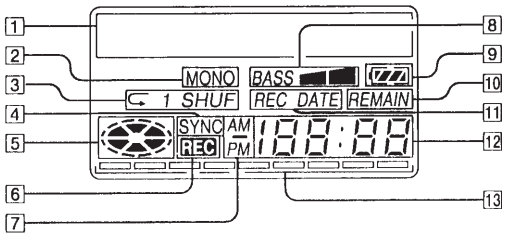
See pages in ( ) for more details.

The recorder



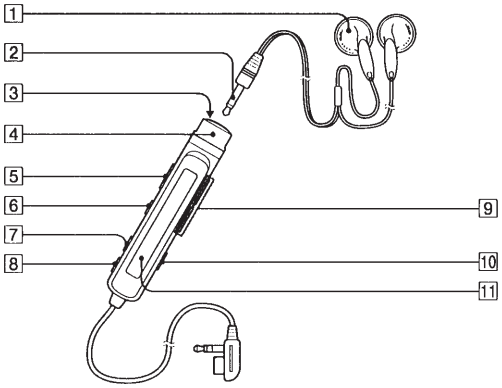
1 END SEARCH button (7)
2 REC indicator (14)
3 DISPLAY button (14, 19)
4 Display window (14, 19)
5 DC IN 3V jack (at the rear) (6)
6 MODE button (17)
7 I◄◄ / ►►I (search / AMS) button (7, 9)
8 LINE IN (OPTICAL) jack (6, 11)
9 MIC (PLUG IN POWER) jack (12)
10 MIC SENS switch (at the bottom) (12)
11 LINE OUT jack (20)
12 DIGITAL MEGA BASS button (18)
13 ■/CHARGE button (7, 9, 27)
14 ► (play) button (7, 9)
15 Battery compartment (at the rear) (27)
16 EDIT/ENTER button (21)
17 AVLS switch (at the bottom) (18)
18 SYNCHRO REC (synchro-recording) switch (11)
19 VOLUME +/– button (9)
20 T MARK button (21)
21 ❚❚ (pause) button (7, 9)
22 REC (record) switch (7)
23 OPEN button (6)
24 HOLD switch (20)
25 CLOCK SET button (at the bottom) (16)
26 ∩ (headphones)/REMOTE jack (8)

The display window



1 Character information display (14, 19)
Displays the disc and track names, date, error messages, track numbers, etc.
2 MONO (monaural) indication
3 Play mode indication
Shows the play mode of the MD.
4 SYNC (synchro-recording) indication
5 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
6 REC indication (7)
Lights up while recording. When flashing, the recorder is in record standby mode.
7 AM/PM indication (16)
Lights up along with the time indication in the 12-hour system.
8 Mega bass indication (18)
9 Battery indication (27)
Shows battery condition.
10 REMAIN (remaining time/tracks) indication (14, 19)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
11 REC DATE (recorded/current date) indication
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
12 Time display (14, 19)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
13 Level meter
Shows the volume of the MD being played or recorded.

The headphones with a remote control



1 Headphones
Can be replaced with optional headphones.
2 Stereo mini plug
3 ■ (stop) button (7,9)
4 Control (9)
To play, turn to ► • ►►I during stop.
Turn to ► • ►►I during play to search the beginning of the succeeding track; hold in this position to fast-forward.
Turn to I◄◄ during play to search the beginning of the preceeding track; hold in this position to rewind.
5 HOLD switch (20)
Slide to lock the controls of the remote control.
6 ❚❚ (pause) button (7,9)
7 PLAY MODE button (17)
8 DISPLAY button (15, 19)
9 VOL (volume) +/– buttons (9)
10 TRACK MARK button (22)
11 Display window (15, 19)

SECTION 2
SELF-DIAGNOSTIC

2-1. GENERAL

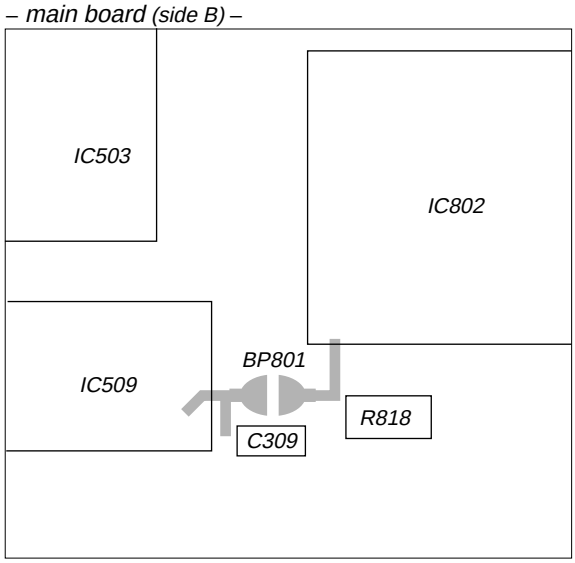
This set uses the self-diagnostic system in which if an error occurs in playback/recording mode, the error is detected by the model control and power control blocks of the microprocessor and information on the cause is stored as history in EEPROM.
By viewing this history in test mode, it helps you to analyze a fault and determine its location.

2-2. TEST MODE SETTING

There are two different methods to set the test mode:

① Short BP801 (TEST) on the main board with a solder bridge (connect pin ㉖ of IC801 to the ground). Then, turn on the power.

– main board (side B) –

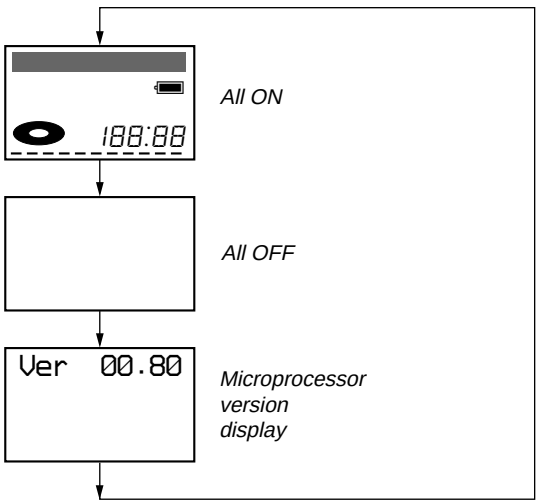


② In the normal mode, use the keys on the unit to perform the following operations:
Press and hold down ► and press the keys below in this turn:
▶▶| → ▶▶| → |◀◀ → |◀◀ → ▶▶| → |◀◀ → ▶▶| → |◀◀ → ❚❚ → ❚❚

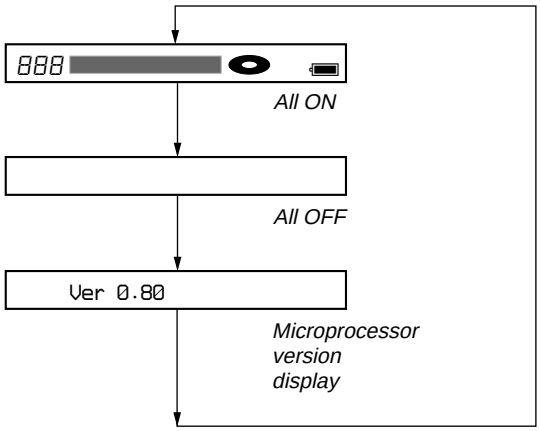
2-3. OPERATION IN TEST MODE SETTING

When the test mode is set, the LCD shows repeated cycles of the following display:

1) Unit LCD



2) Remote controller LCD



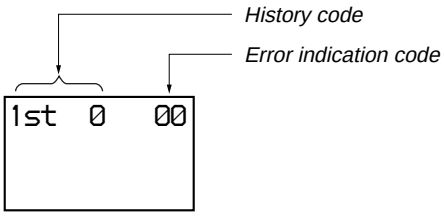
• Holding down ❚❚ allows the current display to be maintained while it being depressed.

2-4. RELEASING THE TEST MODE

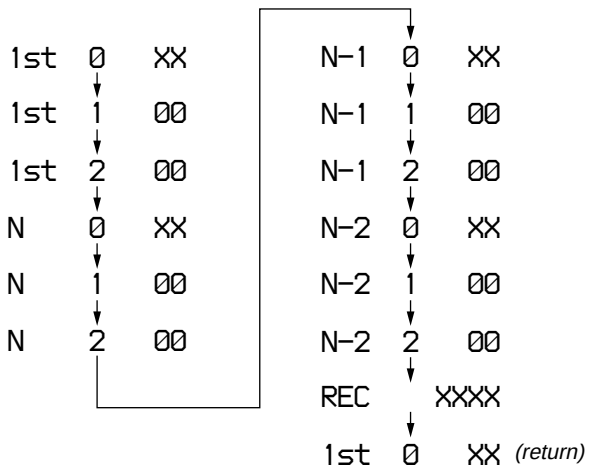
For test mode set with the method ①:
Turn off the power and open the solder bridge on BP801 on the main board.
For test mode set with the method ②:
Turn off the power.

2-5. SELF-DIAGNOSTIC MODE

1. Go into the test mode.
2. With the unit LCD indicators all flashing, press DISPLAY key to go into the self-diagnostic mode.



3. Then, each time ▶▶ key is pressed, the reference information display changes as given below.



• Press |◀◀ key to go back to the previous display.

• Description of History Codes

History code number	Description
1st 0	The first error
1st 1	00 indicated
1st 2	
N 0	The last error
N 1	00 indicated
N 2	
N-1 0	One error before the last.
N-1 1	00 indicated
N-1 2	
N-2 0	Two errors before the last.
N-2 1	00 indicated
N-2 2	
REC	Total recording time *1)

*1) Total recording time
Total recording time is recorded in minutes as an index for load to the OP. It is recorded in hexadecimal format and up to 65,535 min. (about 886 discs of 74-minute disc) can be counted. It returns to "0000h" when recorder goes beyond this limit.
Example : REC 000A → Approx. 10 min.
REC 00A0 → Approx. 160 min.
REC 0A00 → Approx. 2560 min.

• Description of Error Indication Codes

Problem	Indication code	Meaning of code	Description
No error	00		
Abnormal stop during recording	01	Servo error	Abnormal disc RPM. Focus out of alignment. Attempt to access an abnormal address.
	02	ADIP read error	Unable to read the ADIP address.
	03	Shock detected during write	Jumped by 1.5 tracks or more due to shock during write.
	04	Shock detected during laser down	Shock detected when laser was moving down.
Abnormal stop during playback	11	No focus applied	Focus could not be applied.
	12	CRC error	Unable to read the address.
	15	FG error	Abnormal rotation of disc.
Abnormal stop of recording/playback caused by power system	21	Lower voltage due to overload	Power voltage reduced due to overload.
	22	Momentary interruption	Momentary interruption detected.
	23	Lower power voltage in motor system	Power voltage for motor continuously reduced to less than 1V.
	24	Low power voltage in DSP	

2-6. CLEARING THE ERROR INDICATION CODE AND TOTAL RECORDING TIME

After repair, reset the error indication code.
Reset the total recording time when you have replaced the OP.

1. Go into the self-diagnostic mode. (See page 5.)
2. To reset the error indication code, slide REC ➡ key when the code is displayed.
   (All data including 1st, N , N-1 and N-2 are reset.)
3. To reset the total recording time, slide REC ➡ key when the time is displayed.

SECTION 3
DISASSEMBLY

Note : This set can be disassemble according to the following sequence.

Bottom Panel assy ➡ Connector ➡ Main Board

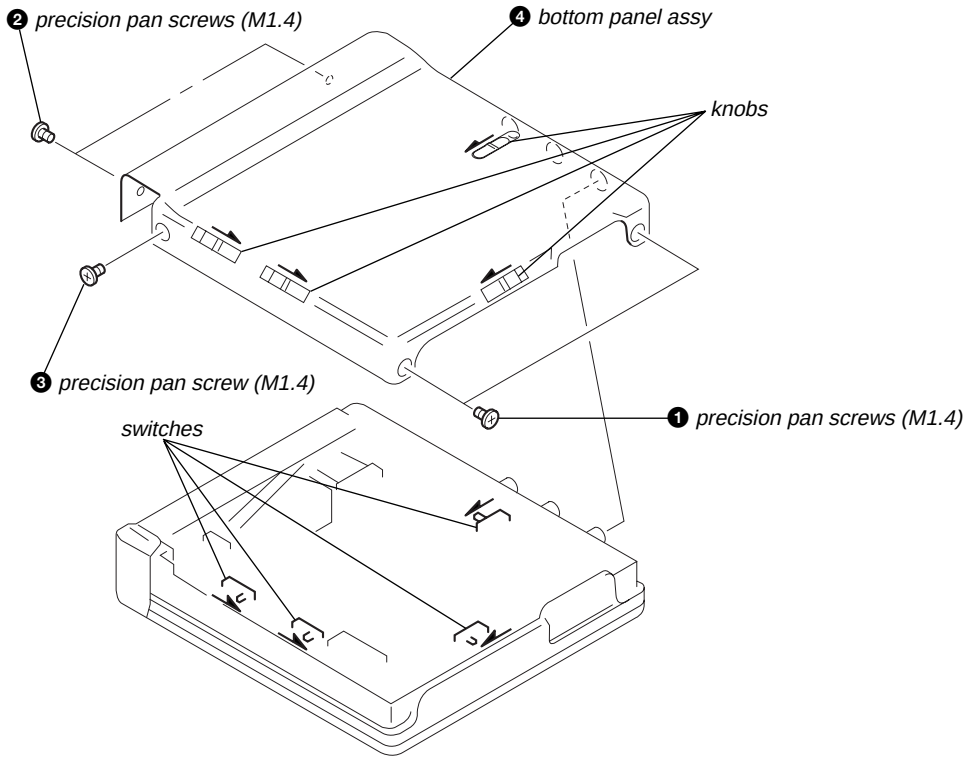
Upper Panel Block assy ➡ LCD Block assy

Ornametal Belt Block assy ➡ Main Board ➡ Chassis (Main) assy ➡ OP Block assy ➡ Holder assy

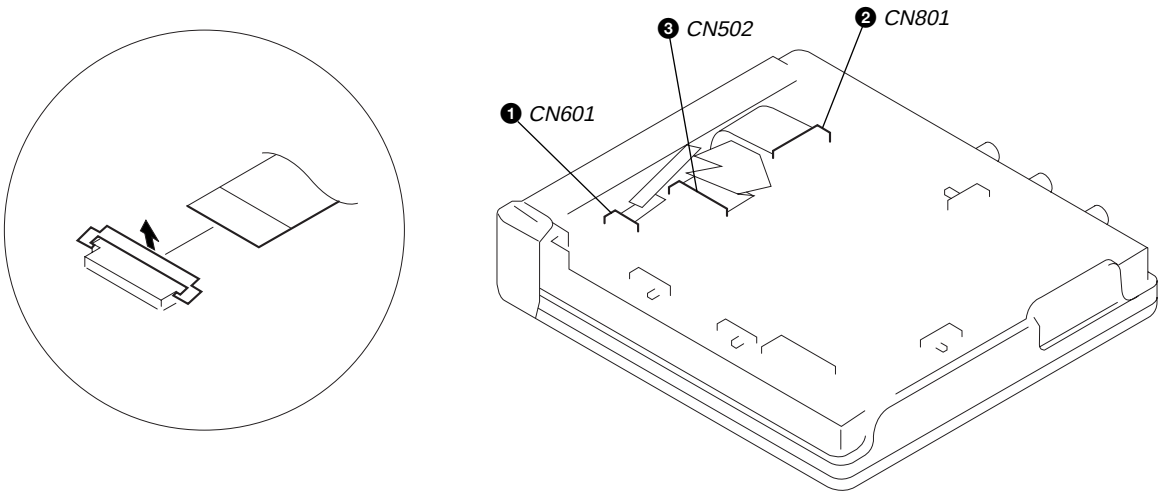
Note : Follow the disassembly procedure in the numerical order given.

3-1. BOTTOM PANEL ASSY

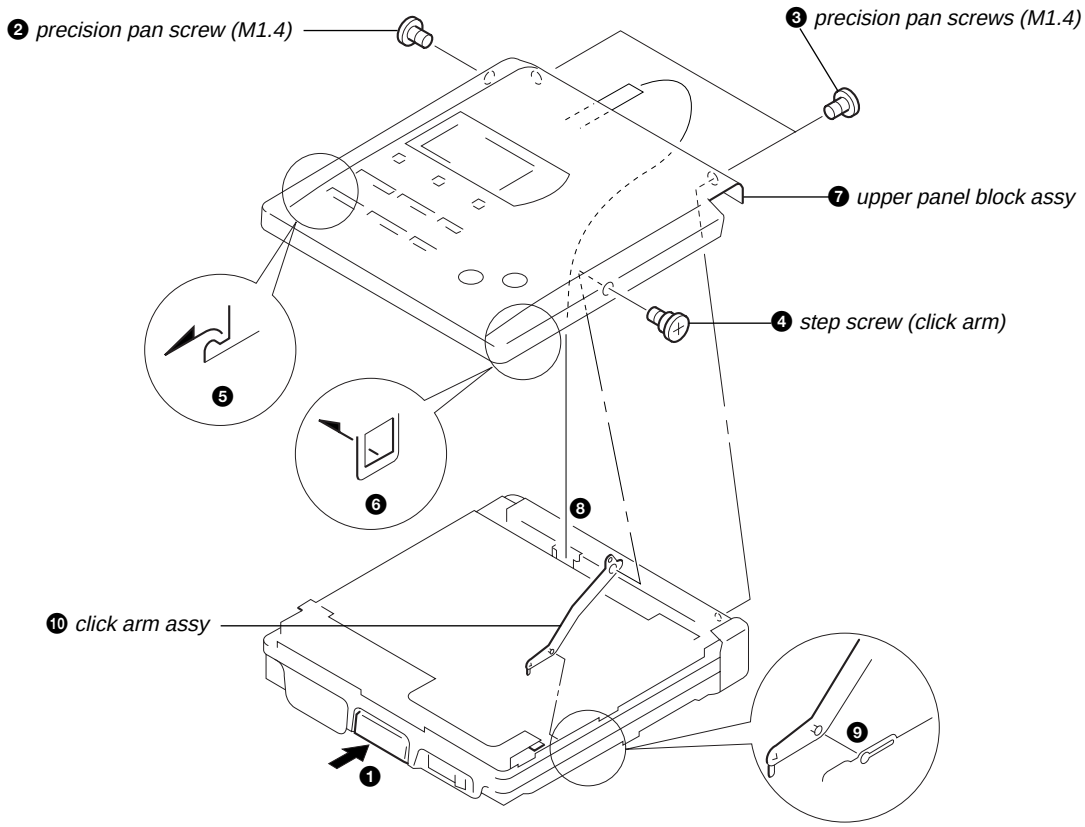
Note) *When installing, fit the each positions knobs with switches.*



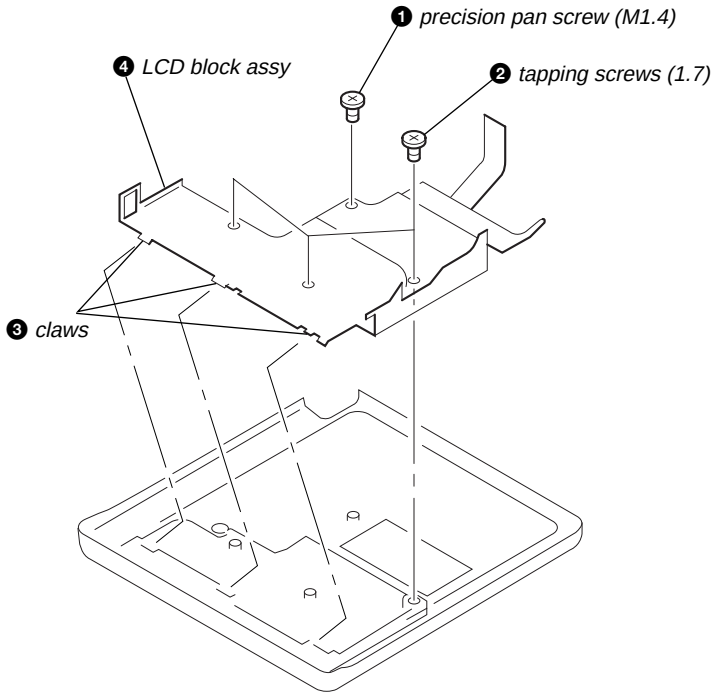
3-2. CONNECTOR



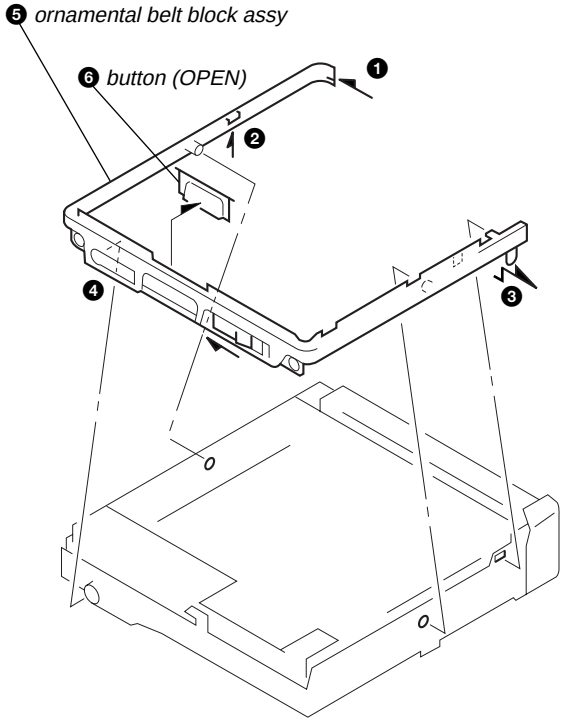
3-3. UPPER PANEL BLOCK ASSY



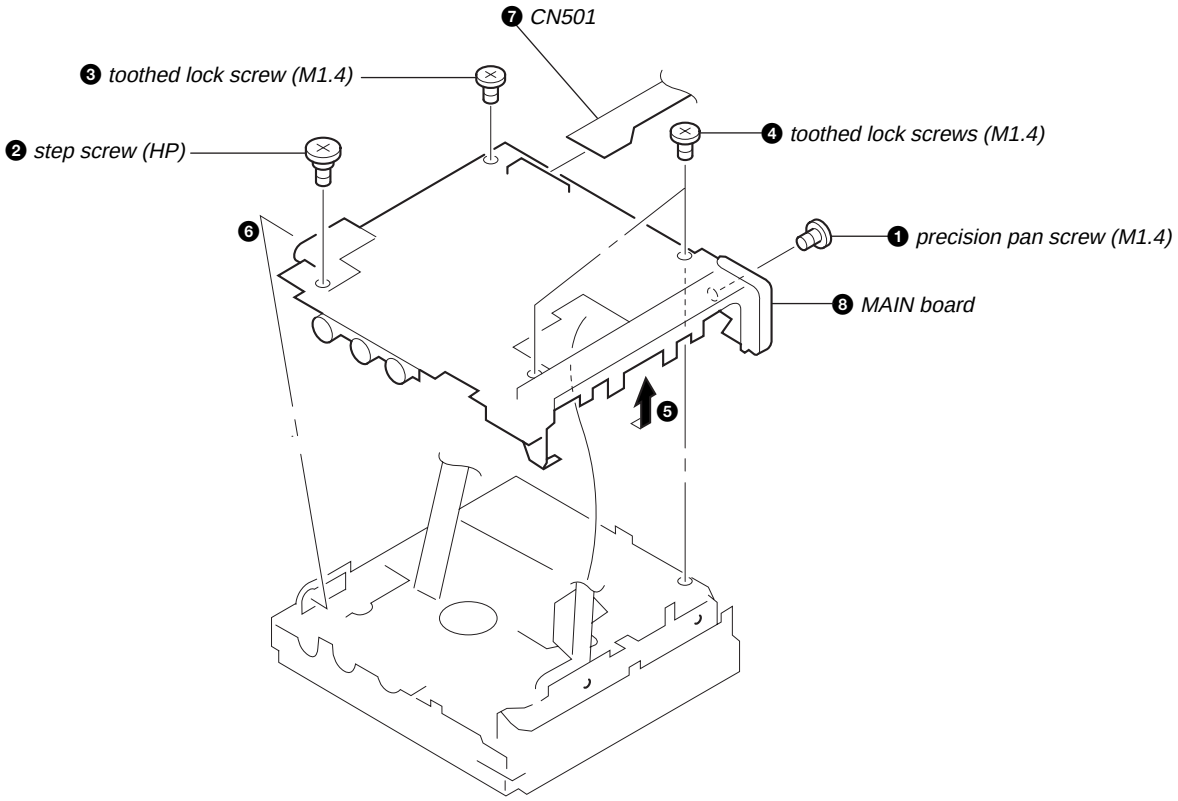
3-4. LCD BLOCK ASSY



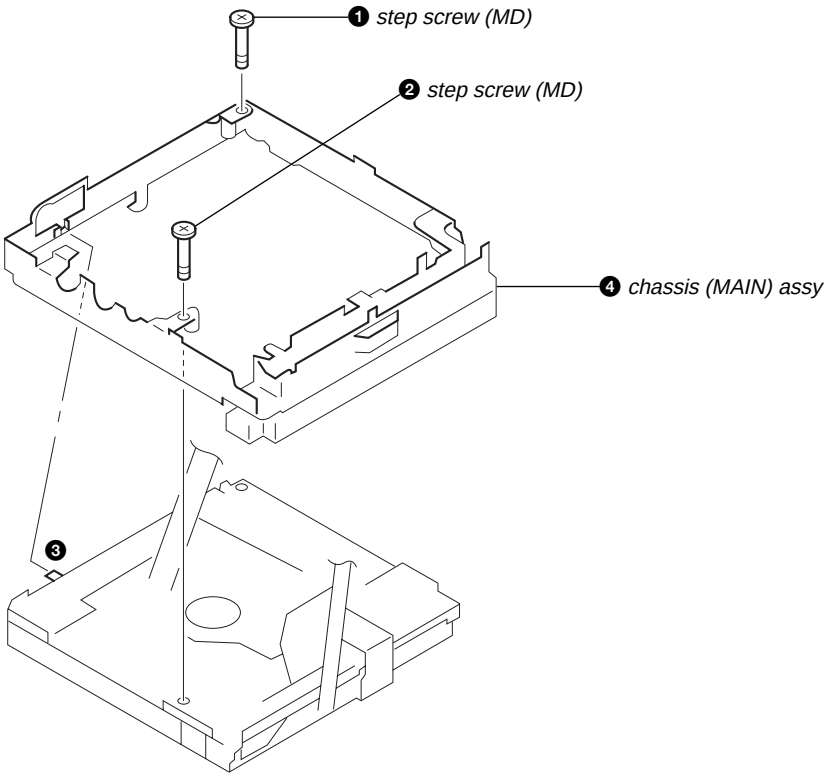
3-5. ORNAMENTAL BELT BLOCK ASSY



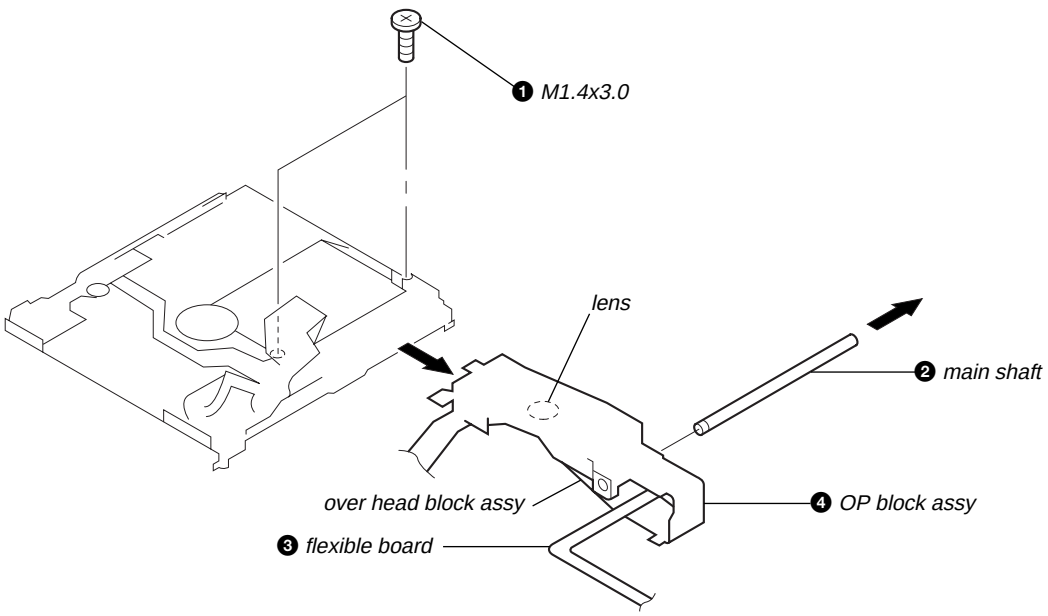
3-6. MAIN BOARD



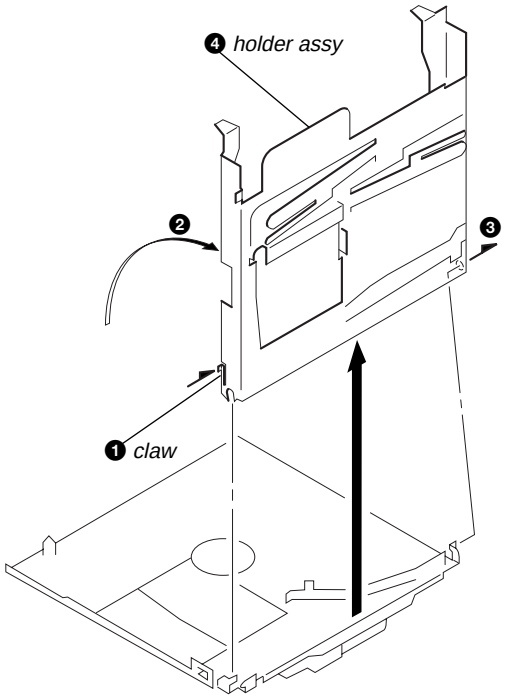
3-7. CHASSIS (MAIN) ASSY



3-8. OP BLOCK ASSY



3-9. HOLDER ASSY



SECTION 4
TEST MODE

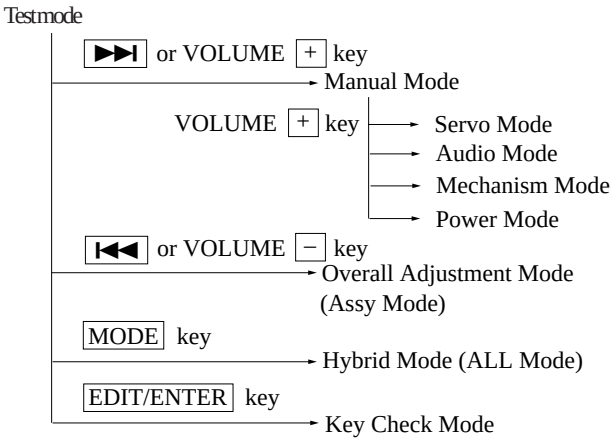
4-1. GENERAL

This set provides the Overall adjustment mode (Assy mode) that allows CD and MO disk to be automatically adjusted when in the test mode. In this Assy mode, the system discriminates between CD and MO disk and then automatically perform adjustments for them in sequence. If a fault is found, the system displays its location. Also, the Servo mode allows each individual adjustment to be automatically adjusted.

4-2. TEST MODE SETTING

See page 5.

4-3. TEST MODE STRUCTURE



4-4. MANUAL MODE

(1) Servo Mode

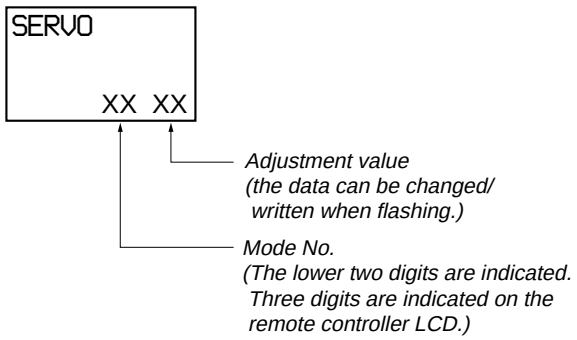
• How to Transfer in the Servo Mode:

Mode No.	Test Description	Check	Write
000	Servo mode		
010	Offset correction value indication		
011	VC offset correction		
012	Focus bias correction		
013	FE offset correction		
014	ABCD offset correction		
015	All servo ON		
016	Temperature indication		
020	Laser power adjustment		
021	Laser CD/MO read adjustment		○ (08)
022	Laser MO write adjustment		○ (4C)
023	Sled normal		○ (45)
024	Sled intermittent		○ (65)
025	Sled access		○ (30)
030	MO test adjustment		
031	MO focus search adjustment		
032	MO read FE balance adjustment		○ (0F)
033	MO read ABCD level		○ (07)
034	MO write FE balance adjustment		○ (10)
035	MO write ABCD level		○ (18)
036	Laser MO read adjustment		○ (08)
037	MO focus gain		○ (30)
038	MO tracking gain		○ (30)
039	MO focus bias	○	○ (06)
040	Low reflection CD test adjustment		
041	Low reflection CD focus search adjustment		
042	Low reflection CD FE balance adjustment		○ (10)
043	Low reflection CD ABCD level		○ (06)
044	Laser low reflection CD read		○ (08)
045	Low reflection CD focus gain		○ (30)
046	Low reflection CD tracking gain		○ (30)
047	Low reflection CD focus bias	○	○ (00)
050	CD test adjustment		
051	CD focus search adjustment		
052	CD FE balance adjustment		○ (10)
053	CD ABCD level adjustment		○ (15)
054	Laser CD read		○ (08)
055	CD focus gain		○ (30)
056	CD tracking gain		○ (30)
057	CD focus bias	○	○ (00)
060	Recording test		
061	32 cluster full recording		
062	Recording shock		
063	32 cluster full playback		

Check : Mode to display error rate and cluster.
Write : Mode to permit adjustment (Default value given in parentheses).

1. Go into the test mode.
2. Press ▶▶I VOLUME + key to set the servo mode.

Unit LCD display

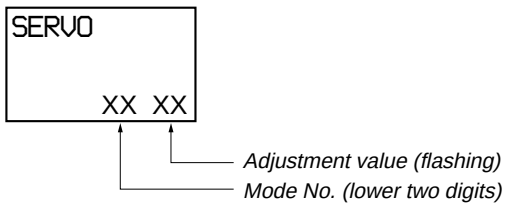


3. Press the keys below to change the mode No.

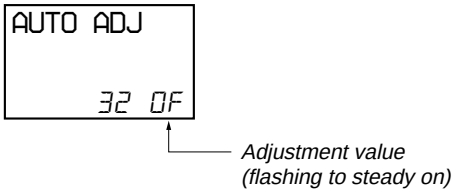
▶ : Increases the one place.
■ : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.
VOLUME +: Increases the ten place by 10 if the one place is 0.
Increases the adjustment value if the one place is non-zero.
VOLUME −: Decreases the ten place by 10 if the one place is 0.
Decreases the adjustment value if the one place is non-zero.

• How to Adjust in Servo Mode:

1. When the servo mode is set to the appropriate mode for each adjustment, the lower two digits of the mode No. and the value stored in EEPROM are displayed and flashing.



2. To perform automatic adjustment for an adjustment item with the mode number 030 to 047, press [❚❚] key.
If the result of adjustment is OK, the adjustment value changes from flashing to steady on and it is automatically written to EEPROM.

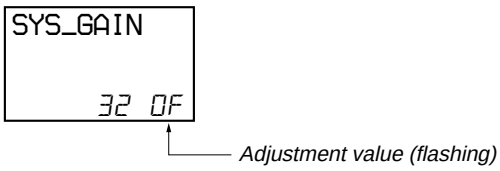


3. To perform manual adjustment, change the adjustment value with VOLUME [+] or [–] key, and press [❚❚] key to write it to EEPROM.

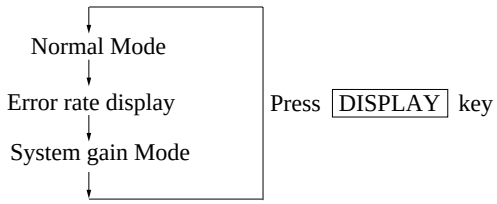
Note) Normally, automatic adjustment should be performed. Do not execute manual adjustment.

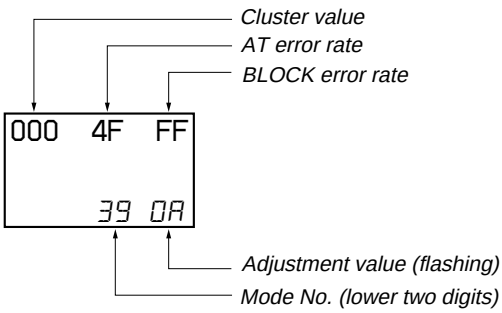
• System Gain Mode

1. This mode allows the system gain to be freely adjusted. Press [DISPLAY] key to enter this mode.



2. Increase or decrease the adjustment value with VOLUME [+] or [–] key.
3. Press [DISPLAY] or [■] key to return to the normal mode.
4. For the error rate display enabled:





Note) In normal service, do not adjust the system gain mode.

(2) Audio Mode

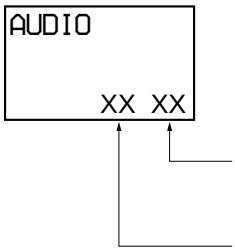
• How to Transfer in the Audio Mode

Mode No.	Test Description	Write	Change Description
100	Audio mode		
110	Audio playback		
111	L/R=1 kHz 0 dB	Playback VOL	HP output
112	L=1 kHz 0 dB	Playback VOL	HP output
113	R=1 kHz 0 dB	Playback VOL	HP output
114	L/R – ∞ dB	Playback VOL	HP output
120	Audio recording test		
121	LINE manual recording	Recording VOL	HP output
*1)	MIC manual recording		
122	DEMP LINE manual recording	Recording VOL	HP output
*1)	DEMP MIC manual recording		
123	LINE automatic recording	HP VOL	HP output
*1)	OPT automatic recording		
	MIC automatic recording		
124	DEMP LINE automatic recording	HP VOL	HP output
*1)	DEMP OPT automatic recording		
	DEMP MIC automatic recording		
130	DIGITAL AGC ADJ1		
131	MIC UP SR	○ (30)	
132	MIC DOWN SR	○ (FA)	
133	MIC THD0	○ (D0)	
134	MIC GAIN	○ (00)	
135	MIC ATTACK	○ (A0)	
136	MIC RECOVER	○ (F8)	
137	MIC THD2	○ (F0)	
138	MIC GAIN2	○ (D0)	
139	MIC RTIME	○ (01)	
140	DIGITAL AGC ADJ2		
141	LINE UP SR	○ (17)	
142	LINE DOWN SR	○ (FF)	
143	LINE THD0	○ (D0)	
144	LINE GAIN	○ (0C)	
145	LINE ATTACK	○ (33)	
146	LINE RECOVER	○ (F8)	
147	LINE THD2	○ (E4)	
148	LINE GAIN2	○ (5F)	
149	LINE RTIME	○ (04)	
150	DIGITAL AGC ADJ3		
151	MAN UP SR	○ (C0)	
152	MAN DOWN SR	○ (40)	
153	AUTO THD3	○ (51)	
154	AUTO LMT UP SR	○ (FF)	
155	AUTO LMT DOWN SR	○ (E0)	
156	MAN THD3	○ (51)	
157	MANU LMT UP SR	○ (FF)	
158	MANU LMT DOWN SR	○ (A0)	
159	THD1	○ (1A)	

*1) The port is detected and the input is automatically selected.
Contents changed : Contents to be changed when VOLUME [+] or [–] key is pressed.
Write : Mode to permit adjustment
(Default value given in parentheses)

1. Go into the test mode.
2. Press [▶▶❙] key or VOLUME [+] key and VOLUME [+] key in this turn to set the audio mode.

Unit LCD display



Adjustment value
(the data can be changed/ written when flashing.)

Mode No.
(The lower two digits are indicated. Three digits are indicated on the remote controller LCD.)

3. Press the keys below to change the mode number.
   ►: Increases the one place.
   ■: Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+]: Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.

VOLUME [–]: Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Adjust in the Audio Mode

1. When the audio mode is set to the appropriate mode for each adjustment, the lower two digits of the mode No. and the value stored in EEPROM are displayed and flashing.
2. Change the adjustment value with VOLUME [+] or [–] key and press [❚❚] key to write the new value to EEPROM.

• How to Check in the Audio Mode

The audio mode allows the checks below to be performed:

1. For the mode numbers of 100 and 110 to 114, pressing [❚❚] key will activate a beep. (No beep sounds when [HOLD] switch is put on.)
2. For the mode numbers of 121 to 124, pressing [DIGITAL MEGA BASS] key will display the DBB mode or the adjustment value.
   1 : Mode 1
   2 : Mode 2
   13 : OFF
   (This will not be accepted when the LINE OUT jack is plugged. The display will be 13: OFF when LINE OUT jack is plugged in Modes 1 and 2.)
3. For the mode numbers of 120 to 124, [REC] LED goes on. (The LED does not go on when SYNCHRO REC switch is put on.)

(3) Mechanism Mode

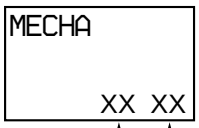
• How to Transfer the Mode in the Mechanism Mode:

Mode No.	Test Description	Operation
200	FUNCTION	Stepper control
210	MECHA test	Initial position return
211	HEAD adjustment	Operation variation changing (19)
212	REC position	Recording head descent
220	CLOCK	Clock
221	CLOCK check	Clock check/initialization

( ) : Default value

1. Go into the test mode.
2. Press [►►|] VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the mechanism mode.

Unit LCD display



Adjustment value

Mode No.
(Lower two digits are displayed.)

3. Press the keys below to change the mode No.
   ►: Increases the one place.
   ■: Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+]: Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.

VOLUME [–]: Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Check in the Mechanism Mode

The mechanism mode allows the checks below to be performed:

1. For the mode numbers of 200, 210 to 212, 220 and 221, pressing [|◄◄] key will move the optical pickup to the inner radius. Pressing [►►|] key will move the pickup to the outer radius.
2. For the mode numbers of 211 and 212, pressing [❚❚] key will start aging. Pressing [■] key will stop aging.
   • Mode No. 211 ... Sled aging with stepper at playback position.
   • Mode No. 212 ... Sled aging with stepper at recording position.
3. With the mode number 210 selected, pressing [❚❚] key will start aging with steeper at between home and recording positions. [■] key will stop aging.

• Clock Operation Check

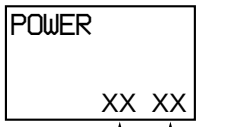
1. For the mode No. of 221, operation check is performed. It is determined as OK if at 11 years, 11 months, 11 days, 11 hours, 11 minutes and 11 seconds or not the default value.
2. For the mode No. of 221, pressing [▮▮] key will clear the resume data stored in EEPROM and initialize the clock data.

Note) The clock should be set when the overall adjustment mode is completed as OK. The write data is to be at 11 years, November 11 days, 11 hours, 11 minutes and 11 seconds.

(4) Power Mode

Mode No.	Test Description	Indication value	Remark
300	POWER test		
310	POWER SUPPLY		
311	DC IN	+B voltage value	
312	DC IN + Ni-Cd	+B voltage value	
313	Ni or AM3	+B voltage value	
314	AM3	+B voltage value	
320	CHG TEST		
321	Charging start		

1. Go into the test mode.
2. Press [▶▶▮] key or VOLUME [+] and VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the power mode.



Adjustment value
Mode No.
(Lower two digits are displayed.)

3. Press the keys below to change the mode No.

[▶] : Increases the one place.
[■] : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.
VOLUME [+]: Increases the ten place by 10 if the one place is 0.
Increases the adjustment value if the one place is non-zero.
VOLUME [–]: Decreases the ten place by 10 if the one place is 0.
Decreases the adjustment value if the one place is non-zero.

Note) With the mode number 310 selected, pressing [▶▶▮] key will transfer to the mode number (311 to 314) for the currently operating power.
With the mode number 300 selected, pressing [▮▮] key will set the sleep mode. Pressing [■] key will release it.

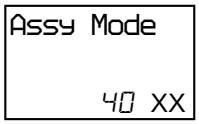
• How to Check in the Power Mode

1. For the mode numbers of 311 to 314, the voltage of the currently operating power is displayed.

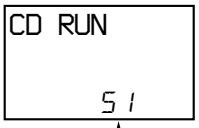
4-5. OVERALL ADJUSTMENT MODE (ASSY MODE)

• How to Adjust in Assy Mode

1. Go into the test mode.
2. Press [▮◀◀] VOLUME [–] key.



3. Insert the test CD (TDYS-1) or an available SONY CD.
4. Press [▶▮] key. The system discriminates between CD and MO and performs automatic adjustment for CD.

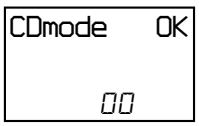


Mode No. under adjustment

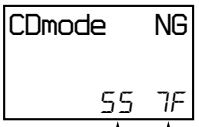
• CD Automatic Adjustment

Mode No.	Adjustment Description
052	CD FE balance adjustment
053	CD ABCD level adjustment
055	CD focus gain
056	CD tracking gain
057	CD focus bias

5. If the result of automatic adjustment is OK, the following display appears:

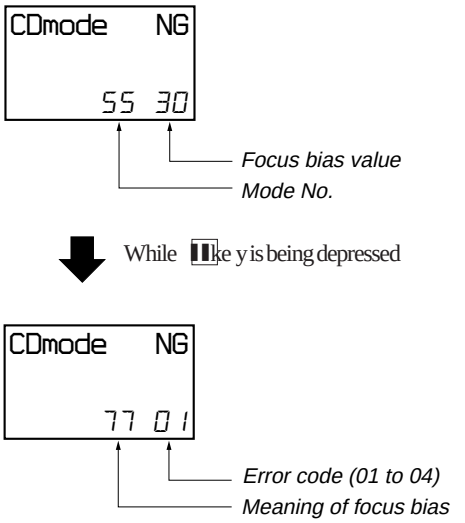


6. If the result of automatic adjustment is NG, the following display appears:

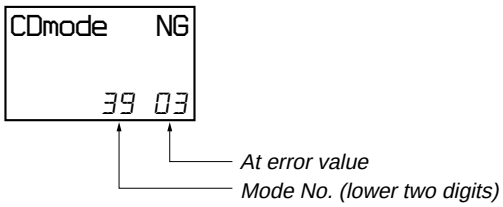


Result of adjustment
NG mode No. (lower two digits)

* For the mode numbers of 039 and 057, if the focus bias value is NG, the following display is repeated:

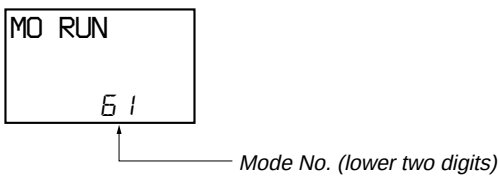


* For the mode numbers of 039 and 061, if the AT error rate is NG, the following display is repeated:



7. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

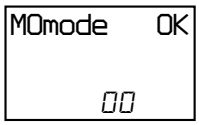
8. Insert a MO disk.
9. Press key. The system discriminates between CD and MO and performs automatic adjustment for the MO disk.



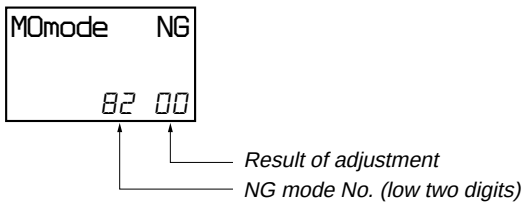
• MO Automatic Adjustment

Mode No.	Adjustment Description
032	MO read FE balance adjustment
033	MO read ABCD level
034	MO write FE balance adjustment
035	MO write ABCD level
037	MO focus gain
038	MO tracking gain
061	32 cluster full recording
062	Recording shock
063	32 cluster full playback
039	MO focus bias
042	Low refrection CD FE balance adjustment
043	Low refrection CD ABCD level
044	Laser low reflection CD read
046	Low refrection CD tracking gain

10. If the result of automatic adjustment is OK, the following display appears:



11. If the result of automatic adjustment is NG, the following display appears:



12. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

4-6. HYBRID MODE, KEY CHECK MODE

These modes are not used in normal service.

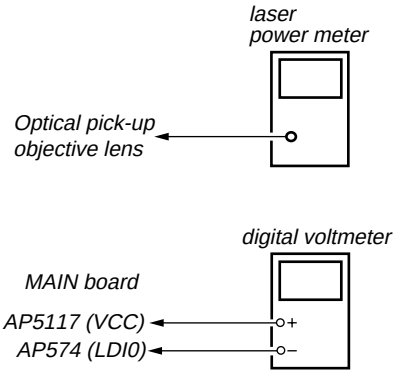
SECTION 5
ELECTRICAL ADJUSTMENTS

PRECAUTIONS FOR ADJUSTMENT

1) Perform all adjustments in the order given in the test mode. After adjusting, exit the test mode.
2) Use the following tools and measuring instruments.
   - Test CD TDYS-1 (Part No. : 4-963-646-01)
   - Recorded MO disk PTDM-1 (Part No. : J-2501-054-A)
   - Laser power meter LPM-8001 (Part No. : J-2501-046-A)
   - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
   - Digital voltmeter
3) Unless specified otherwise, supply DC 3V from the DC IN 3V jack.
4) Swtich, knob positions
   HOLD switch ..... OFF
   AVLS switch ..... NORM

LASER POWER CHECK

Connection :



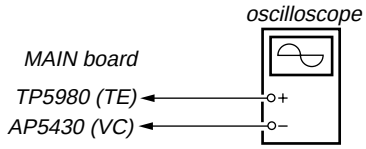
Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the [▶▶] key, and set the laser power adjustment mode (Mode : 020) using the VOLUME [+] or [–] key.
3. Press the [|◀◀] key and move the optical pick-up to the innermost circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
5. Press the [▶▶] key, and set the laser CD/MO read adjustment mode (Mode : 021).
6. Check that the laser power meter reading is 0.85 ±0.085 mW.
7. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 44 mV.
8. Press the [▶▶] key, and set the laser MO write adjustment mode (Mode : 022).
9. Check that the laser power meter reading is 6.8 ±0.68 mW.
10. Press the [▮▮] key to finalize the adjustment data.
11. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 80 mV.
12. Press the [■] key.
13. Exit the test mode.

Adjustment Location : See page 19.

MO TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the [▶▶] key, and set the MO test adjustment mode (Mode : 030) using the VOLUME [+] or [–] key.
3. Press the [|◀◀] or [▶▶|] key and move the optical pick-up to the center circumference.
4. Insert any MO disk available on the market.
5. When the [▶▶] key is pressed, the MO read FE balance adjustment mode (Mode : 032) will be set after MO focus search adjustment mode (Mode : 031).
6. Press the [▮▮] key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.
7. Slide the REC key and set the MO write FE balance adjustment mode (Mode : 034).
8. Press the [▮▮] key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

Specification : A = B, C ≧1.0 Vp-p

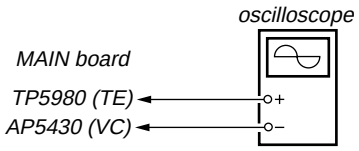
9. Check that the traverse level at this time is above 1.0 Vp-p.
10. Press the [■] key.
11. Exit the test mode.

Note) Using a recorded disk in this adjustment will erase the data.

Adjustment Location : See page 19.

LOW REFLECTION CD TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the PLAY key, and set the low reflection CD test adjustment mode (Mode : 040) using the VOLUME + or – key.
3. Insert any MO disk available on the market.
4. When the PLAY key is pressed, the low reflection CD FE balance adjustment mode (Mode : 042) will be set after low reflection CD focus search adjustment mode (Mode : 041).
5. Press the PAUSE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

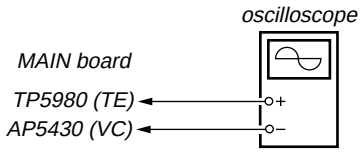
Specification : A = B, C ≧0.9 Vp-p

6. Check that the traverse level at this time is above 0.9 Vp-p.
7. Press the STOP key.
8. Exit the test mode.

Adjustment Location : See page 19.

CD TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the PLAY key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the TRACK ◀◀ ▶▶ key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the PLAY key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. Press the PAUSE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

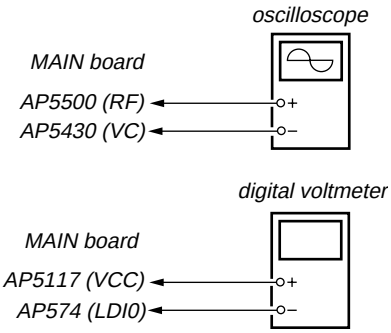
Specification : A = B, C ≧1.0 Vp-p

7. Check that the traverse level at this time is above 1.0 Vp-p.
8. Press the STOP key.
9. Exit the test mode.

Adjustment Location : See page 19.

CD RF LEVEL CHECK

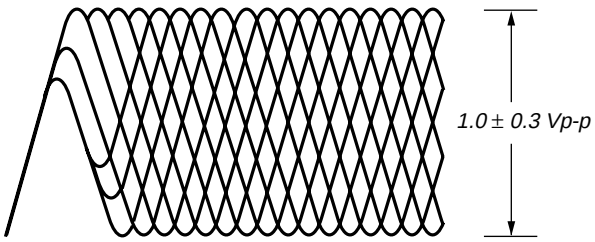
Connection :



Adjustment Method :

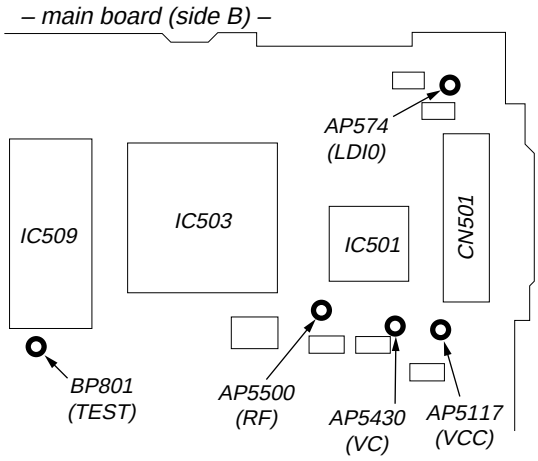
1. Set the servo mode of the test mode (Mode : 000).
2. Press the ▶ key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the ⏮ or ⏭ key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the ▶ key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. When the ▶ key is pressed, the CD ABCD level adjustment mode (Mode : 053) is set.
7. Press the ⏸ key to perform automatic adjustment, and check that the RF level is 1.1 ± 0.3 Vp-p.

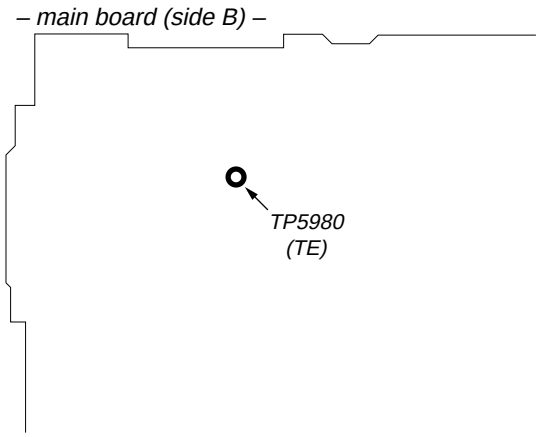
(RF waveform)



8. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) and at this time is below 40 mV.
9. Press the ■ key.
10. Exit the test mode.

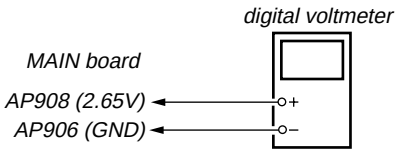
Adjustment Location :





2.65V ADJUSTMENT

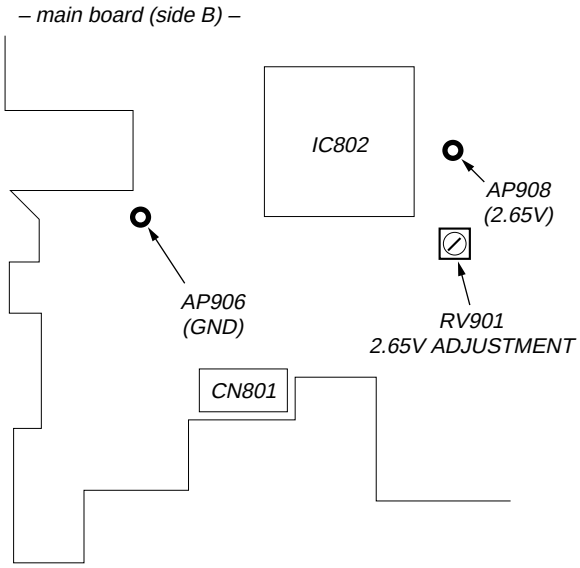
Connection :



Adjustment Method :

1. Playback the test CD (TDYS-1).
2. Adjust RV901 so that the voltage between AP908 (2.65V) and AP906 (GND) is at 2.65 ± 0.03 Vdc.

Adjustment Location :



SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTIONS

• IC503 CXD2652AR (DIGITAL SERVO, ATRAC)

Pin No.	Pin name	I/O	Pin Description
1	MNT 0	O	Traverse count signal output.
2	MNT 1	O	Track jump detect output.
3	MNT 2	—	Not used (Open).
4	MNT 3	—	Focus OK signal output.
5	SWDT	I	Inputs write data signal from system controller (IC802).
6	SCLK	I	Inputs serial clock signal from system controller (IC802).
7	XLAT	I	Inputs serial latch signal from system controller (IC802).
8	SRDT	O	Outputs write data signal to system controller (IC802).
9	SENS	O	Outputs internal status (SENS) to system controller (IC802).
10	XRST	I	Inputs reset signal from system controller (IC802). L : Reset
11	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
12	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
13	WRPWR	I	Inputs laser power switching signal from system controller (IC801).
14	NC	—	Not used (Open).
15	TX	I	Input of write data taransmission timing from system controller (IC801). Also used as magnetic field head ON/OFF output.
16	OSC1	O	Clock output (22.5 MHz).
17	OSC0	I	Clock input (22.5 MHz).
18	XTSL	—	Not used (Fixed at “L”)
19	NC	—	Not used (Connect to ground).
20	RVSS	—	Connect to ground.
21	DIN	I	Digital audio signal input pin (For optical input).
22	NC	—	Not used (Open).
23	ADDT	I	Audio data input from A/D converter (IC301).
24	DATA	O	Monitor/decode audio data output to A/D converter (IC301).
25	ALRCK	O	L/R clock output to D/A converter (IC301).
26	ABCK	O	Bit clock signal output to A/D, D/A converter (IC301).
27	FS256	O	11.2896 MHz clock output (MCLK).
28	DV_{DD}	—	Power supply (+2.8 V) for digital.
29 – 39	A00 – A08, A10, A11	O	Address signal output to DRAM (IC509).
40	DVSS	—	Ground terminal.
41	XOE	O	Output enable contol signal output to DRAM (IC509).
42	XCAS	O	Column address strobe singal output to DRAM (IC509).
43	A09	O	Address signal output to DRAM (IC509).
44	XRAS	O	Row address strobe signal output to DRAM (IC509).
45	XWE	O	Read/write control signal output to DRAM (IC509).
46 – 49	D0 – D3	I	Data signal input from DRAM (IC509).
50	MVCI	—	Not used (Connect to ground).
51	ASYO	O	Playback EFM full-swing output (L : VSS, H : VDD).
52	ASYI	I	Playback EFM asymmetry comparate voltage input.
53	AVDD	—	Power supply (+2.8 V) for analog.
54	BIAS	I	Playback EFM asymmetry circuit constant current input.
55	RFI	I	Inputs playback EFM RF signal from RF amplifier (IC501).

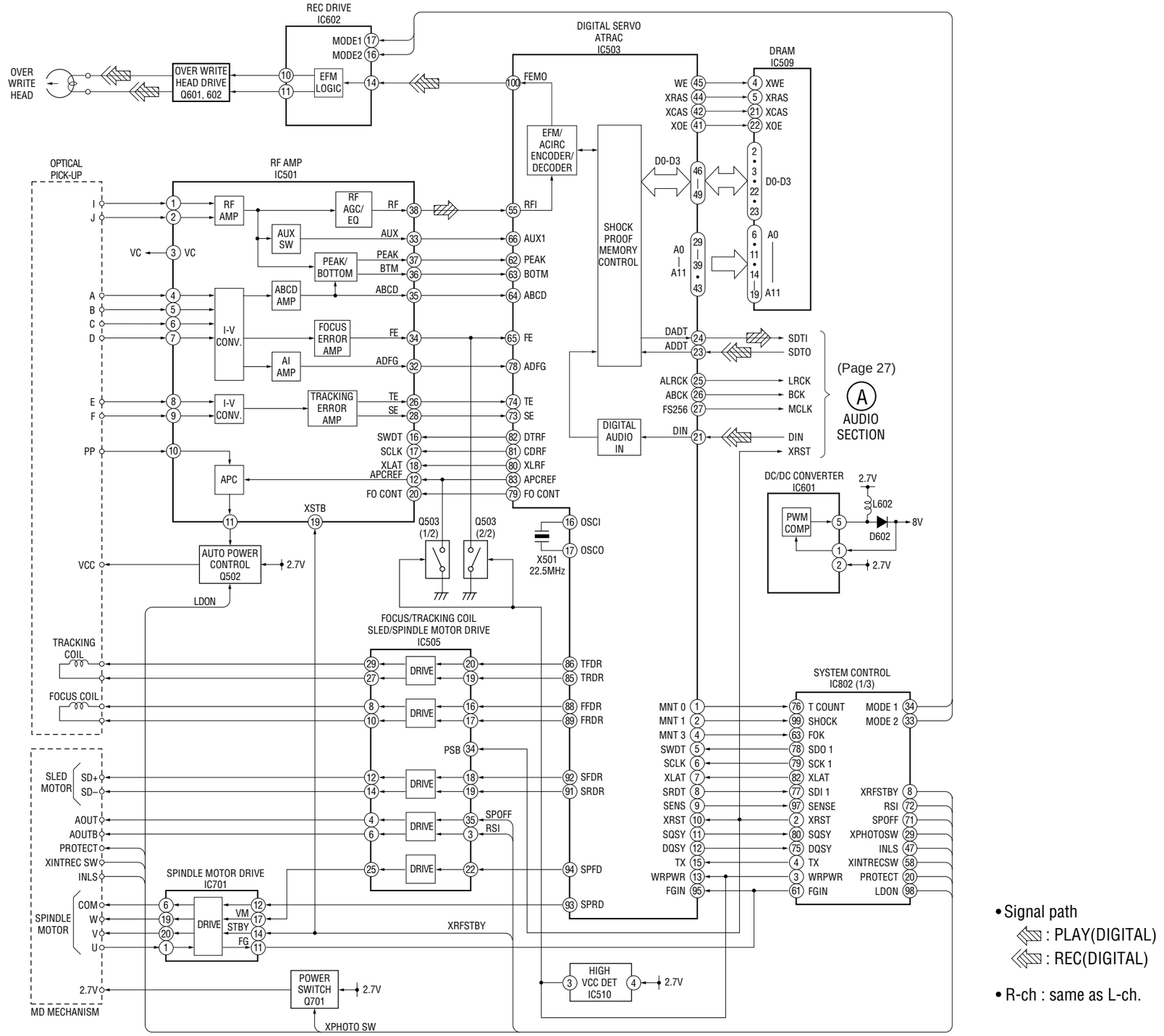
Pin No.	Pin name	I/O	Pin Description
56	AVSS	—	Ground terminal.
57	PDO	—	Not used (Open).
58	PCO	O	Decoder PLL master clock PLL phase comparison output.
59	FILI	I	Decoder PLL master clock PLL filter input.
60	FILO	O	Decoder PLL master clock PLL filter output.
61	CLTV	I	Decoder PLL master clock PLL VCO control voltage input.
62	PEAK	I	Inputs peak hold signal for light amount signal from RF amplifier (IC501).
63	BOTM	I	Inputs bottom hold signal for light amount signal from RF amplifier (IC501).
64	ABCD	I	Light amount signal from RF amplifier (IC501).
65	FE	I	Input focus error signal from RF amplifier (IC501).
66	AUX1	I	Input of auxiliary signal from RF amplifier (IC501).
67	VC	I	Input of middle point voltage (+1.4 V) from RF amplifier (IC501).
68	ADIO	—	Not used (Open).
69	AVDD	—	Power supply (+2.8 V) for analog.
70	ADRT	—	Not used (Connect to +2.8 V).
71	ADRB	—	Not used (Connect to ground).
72	AVSS	—	Ground terminal.
73	SE	I	Input of sled error signal from RF amplifier (IC501).
74	TE	I	Input of tracking error signal from RF amplifier (IC501).
75	AUX2	—	Not used (Connect to +2.8 V).
76	DCHG	—	Not used (Connect to +2.8 V).
77	APC	—	Not used (Connect to +2.8 V).
78	ADFG	I	Input of ADIP dual FM signal from RF amplifier (IC501) (22.05 kHz ± 1 kHz). (TTL Schmit input)
79	FO CONT	O	Focus control output to RF amplifier (IC501).
80	XLRF	I	Latch signal input from RF amplifier (IC501).
81	CKRF	O	RFCK clock (7.35 kHz) signal output.
82	DTRF	I	Serial data input from system controller (IC802).
83	APCREF	I	Laser power setting signal input.
84	LDDR	—	Not used (Open).
85	TRDR	O	Tracking servo drive signal output (–).
86	TFDR	O	Tracking servo drive signal output (+).
87	DVDD	—	Power supply (+2.8 V) for digital.
88	FFDR	O	Focus servo drive signal output (+).
89	FRDR	O	Focus servo drive signal output (–).
90	FS4	O	Not used (Open). (176.4 kHz clock signal output (MCLK).)
91	SRDR	O	Sled servo drive signal output (–).
92	SFDR	O	Sled servo drive signal output (+).
93	SPRD	O	Spindle servo drive signal output (–).
94	SPFD	O	Spindle servo drive signal output (+).
95	FGIN	I	FG signal input from spindle motor driver (IC701).
96	TEST1	—	Not used (Connect to ground).
97	TEST2	—	Not used (Connect to ground).
98	TEST3	—	Not used (Connect to ground).
99	DVSS	—	Ground terminal.
100	EFMO	O	EFM recording signal output.

• IC802 CXP740010 (SYSTEM CONTROL)

Pin No.	Pin name	I/O	Pin Description
1	CLKCS	O	Chip select output to real time clock (IC805).
2	XRST	O	Reset output. L : Reset
3	WRPWR	O	Laser power switching signal output.
4	TX	O	Write data transfer timing output.
5	SDI2	I	Serial data input.
6	SDO2	O	Serial data output.
7	SCK2	O	Serial clock output.
8	XRF-STBY	O	Power control output to RF amplifier (IC501).
9	SSB	I/O	SSB data signal input and output.
10	SSB SCK	I/O	SSB clock signal input and output. (Not used (Open).)
11	DTCK	I/O	Remote control data signal input/output.
12	SPCK	—	Not used (Open).
13	WP	I	Wake-up signal input from remote control key and this unit key.
14	OPEN	I	Detecting switch for opening and closing of the upper cover. L : Close
15	CLOCK	I	CLOCK SET switch input.
16	NC	—	Not used (Open).
17	NC	—	Not used (Open).
18	T.MARK	I	T MARK (Track mark) switch input.
19	REC	I	REC switch input.
20	PROTECT	I	Disc write protect switch. H : Protect
21	HOLD	I	HOLD switch input (This unit). L : HOLD
22	SYNC REC	I	SYNCHRO REC switch input.
23	D. B. B	I	DIGITAL MEGA BASS slide switch input.
24	XLINEDET	I	LINE IN (OPTICAL) detection input. L : LINE IN
25	AVLS	I	AVLS switch input. L : LIMIT
26	XTEST	I	Test mode terminal. L : Test mode
27	XDCIN	I	Not used (Open). (DC input detect. L : DC IN)
28	KANA SE L	I	Model input. (L : J model, H : Tourist, Hong Kong model)
29	XPHOTO SW	O	ON/OFF control signal output of PHOTO circuit.
30	XP CONT	O	Power control output. L : ON
31	X2VCONT	O	Outputs H while operating with a lithium battery. 2V power control signal output. L : ON
32	XREC LED	O	REC LED control. L : ON
33	MODE2	O	REC drive (IC602) control signal output.
34	MODE1	O	
35	XNIMH CHG	O	Battery charger control signal output. L : Charge
36	XLCD ON	O	LCD ON/OFF control. L : ON
37	——	—	Not used (Open).
38	MRST	I	Microprocessor reset input.
39	V_{SS}	—	Ground.
40	XTAL	—	System clock (12 MHz).
41	EXTAL	—	System clock (12 MHz).
42	LCD STBY	O	LCD communication strobe signal output to LCD driver.
43	NC	—	Not used.
44	LCD DATA	O	LCD data output.
45	LCD SCK	O	Serial clock output.
46	CHG MNT	I	Battery charge voltage minitor input.
47	INLS	I	Detecting switch for internal circuit of sleding. L : Internal circuit
48	HIDC MNT	I	Voltage monitor DC input.
49	KEYR	I	Remote control key input.
50	AV_{SS}	—	Ground terminal for A/D converter.

Pin No.	Pin name	I/O	Pin Description
51	AVREF	I	A/D converter reference voltage input.
52	AV_{DD}	—	A/D converter power supply terminal.
53	NC	—	Not used (Open).
54	TEMP	I	Temp meter (IC803) input.
55	KEY3	I	Key input.
56	KEY4	I	Key input.
57	KEY1	I	Key input.
58	XINT REC SW	I	Recording head position detect input.
59	UNREG MNT	I	2.8 V voltage monitor input.
60	2V MNT	I	Voltage monitor for lithium battery. Motor power voltage monitor input.
61	FG IN	I	FG input from motor driver (IC503).
62	NC	—	Not used (Open).
63	FOK	I	Focus OK signal input.
64	——	—	Not used (Open).
65	——	—	Not used (Open).
66	XJACKDET	I	LINE IN (OPTICAL) jack detection input.
67	OPT DET	I	LINE IN (OPTICAL) optical detection input.
68	XMIC DET	I	MIC (PLUG IN) jack detection.
69	——	—	Not used (Open).
70	——	—	Not used (Open).
71	SPOFF	O	REC head motor control signal output.
72	RSI	O	
73	CHG CONT	O	Constant current chage control signal output.
74	——	—	Not used (Open).
75	DQSY	I	Subcode Q sync (SCOR) of digital in U-bit CD format from IC503.
76	T COUNT	I	Traverse count signal input.
77	SDI1	I	Serial data input.
78	SDO1	O	Serial data output.
79	SCK1	O	Serial clock output.
80	SQSY	I	SUB-Q/ADIP SYNC input.
81	BEEP	O	BEEP sound output control.
82	XLAT	O	Latch output.
83	NC	—	Not used (Open).
84	TEX	—	Not used (Fixed at “L”).
85	XT	—	Not used (Fixed at “L”).
86	V_{SS}	—	Ground.
87	V_{DD}	—	Power supply pin (+2.8V).
88	NC	—	Not used (Fixed at “H”).
89	XCS ADA	O	A/D, D/A converter chip select output.
90	XPD ADA	O	A/D, D/A converter power down signal output. H : Power down
91	KEYON	O	SLEEP : L, action : H.
92	XNIMH DET	I	Battery detect switch input.
93	A MUTE	O	Analog mute control. H : Mute
94	OPT CTL	O	Power supply control output for an optical input.
95	XCE REG	—	Not used (Open).
96	XCE NV	O	EEPROM chip select output.
97	SENS	I	SENS input.
98	LDON	O	“H” : APC circuit ON, “L” : APC circuit OFF
99	SHOCK	I	Track jump detection input from IC503.
100	GND SW	O	Ground switch output.

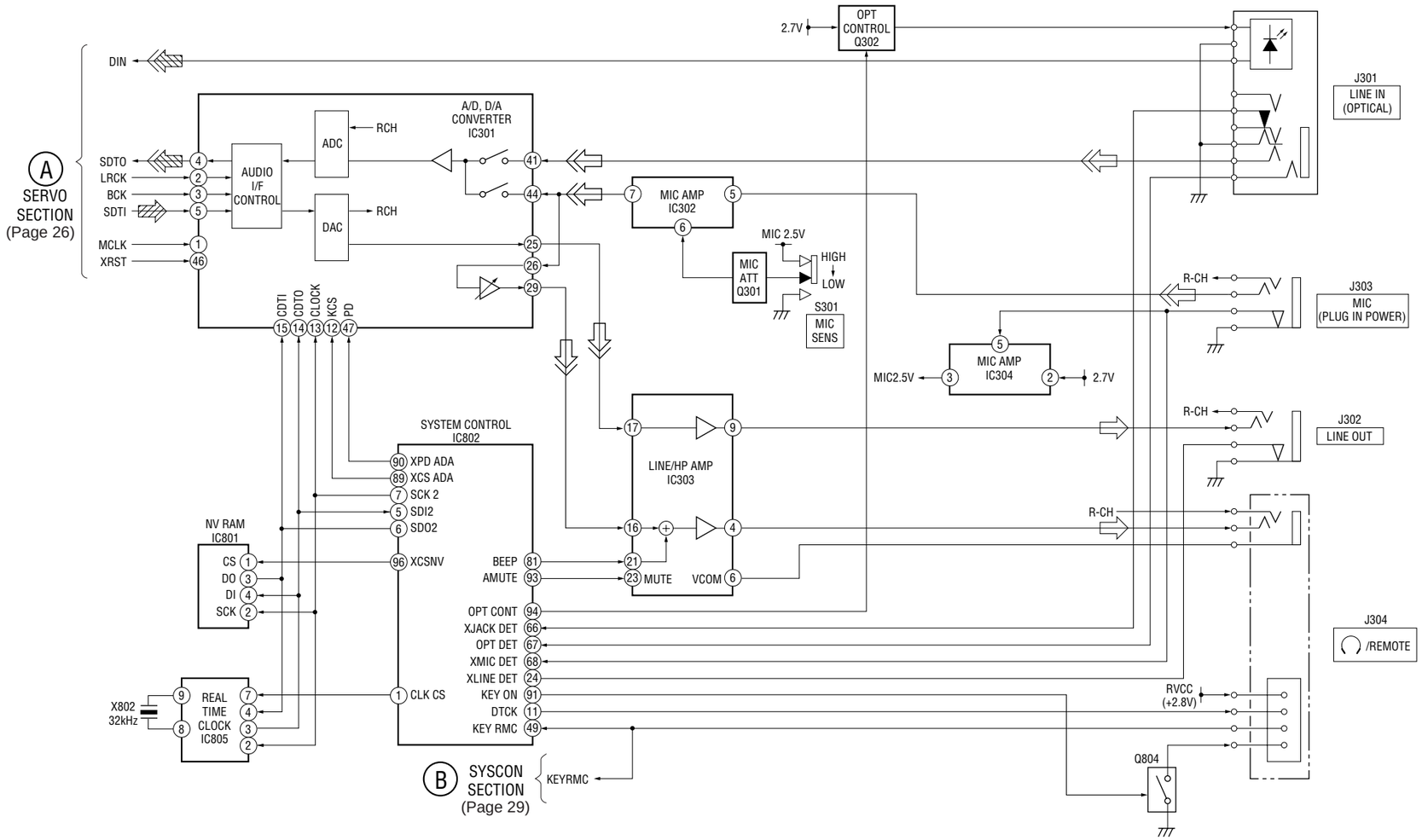
6-2. BLOCK DIAGRAM — SERVO SECTION —



04

- Signal path
  - : PLAY(DIGITAL)
  - : REC(DIGITAL)
- R-ch : same as L-ch.

6-3. BLOCK DIAGRAM — AUDIO SECTION —

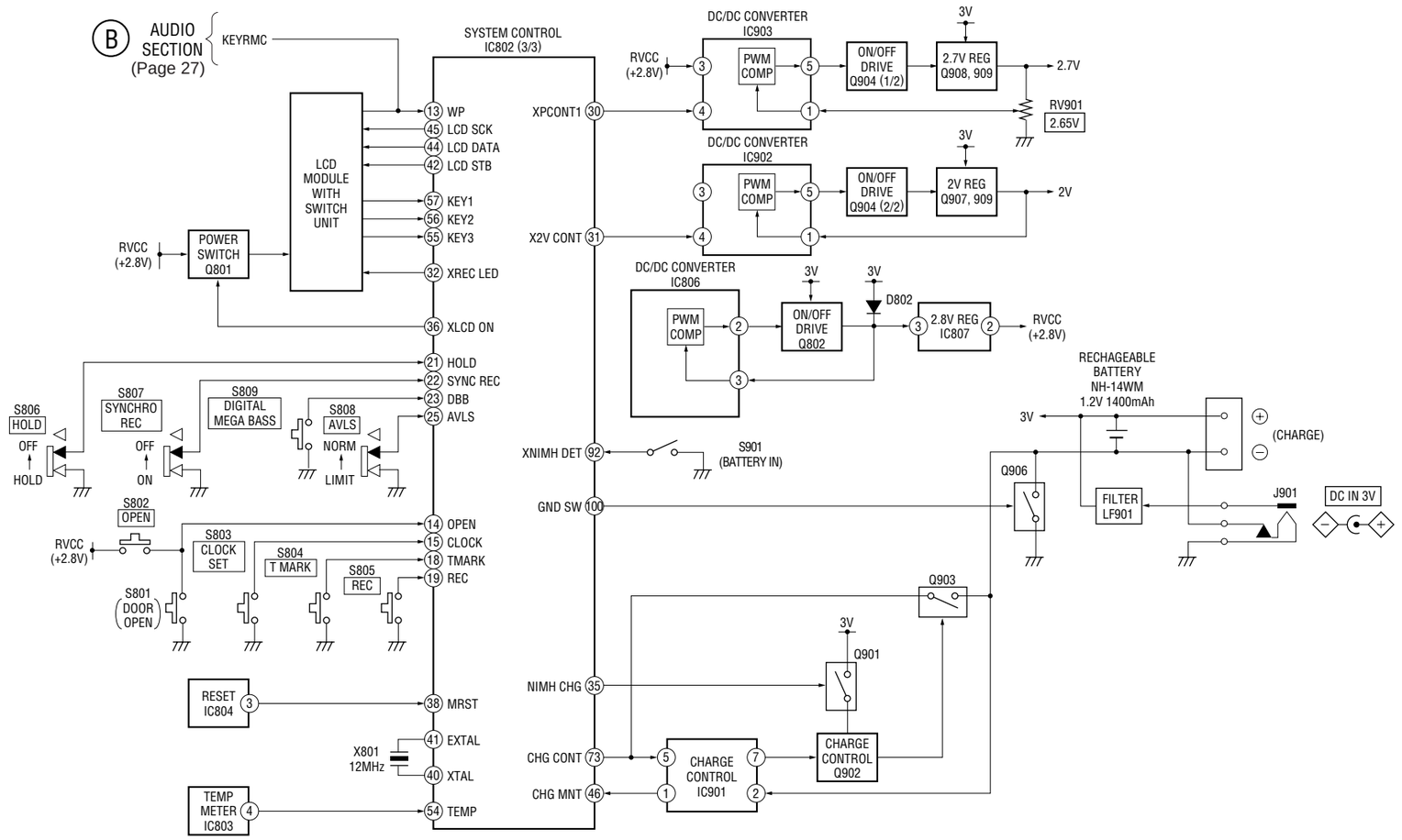


04

- Signal path
  - : PLAY(DIGITAL)
  - : REC(DIGITAL)
  - : PLAY(ANALOG)
  - : REC(ANALOG)

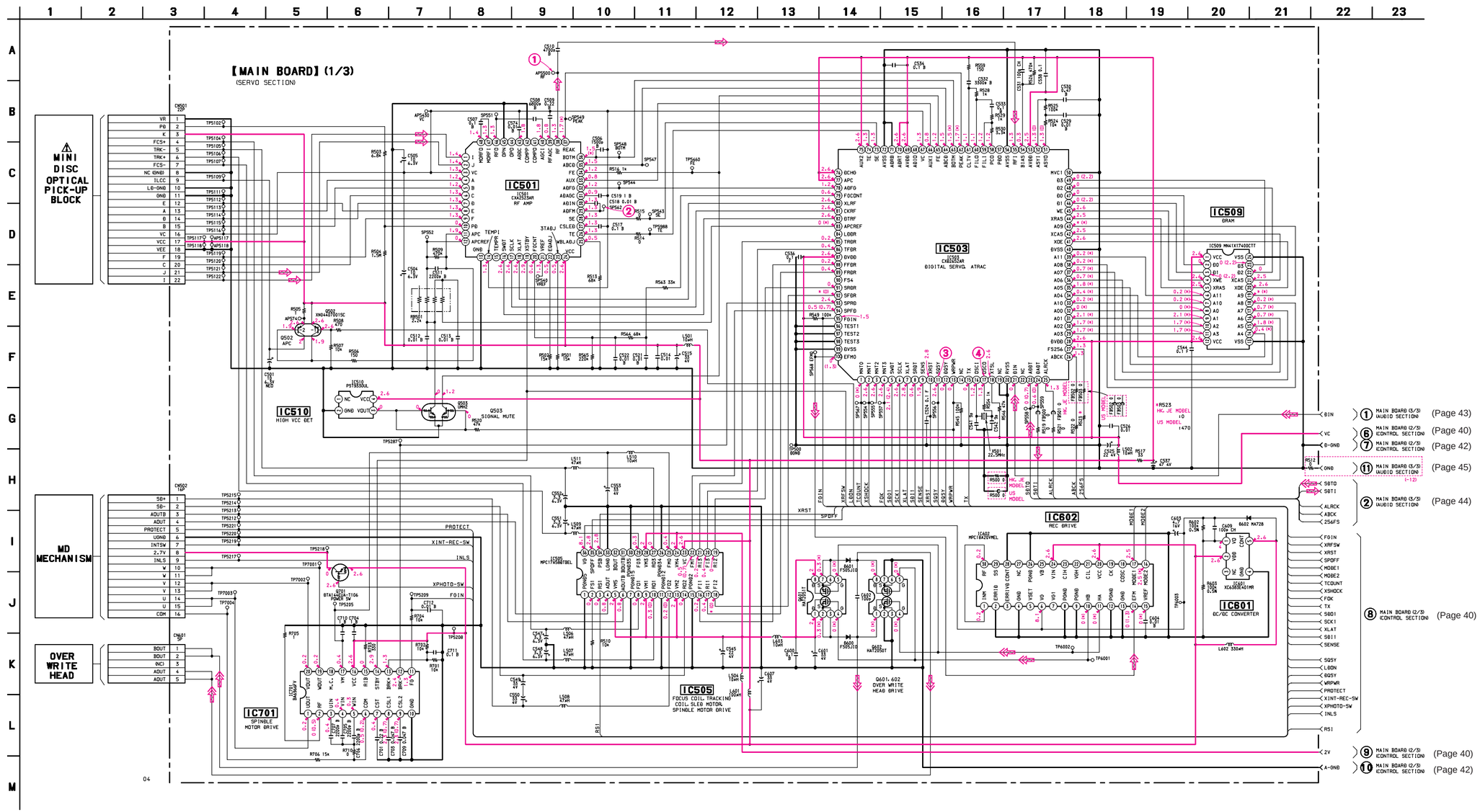
- R-ch : same as L-ch.

6-4. BLOCK DIAGRAM — SYSTEM CONTROL SECTION —



04

6-7. SCHEMATIC DIAGRAM — MAIN SECTION (1/3) — • Refer to page 46 for IC Block Diagrams.



• Waveforms

① VOLT/DIV : 0.5V AC
TIME/DIV : 1µsec
1.0±0.3Vp-p
IC501 (38)

② VOLT/DIV : 0.1V AC
TIME/DIV : 0.1msec
Approx. 0.5Vp-p
IC501 (29)

③ VOLT/DIV : 1V AC
TIME/DIV : 5msec
2.4Vp-p
13.4msec
IC503 (11)

④ VOLT/DIV : 1V AC
TIME/DIV : 20nsec
2.4Vp-p
22.5MHz
IC503 (17)

Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

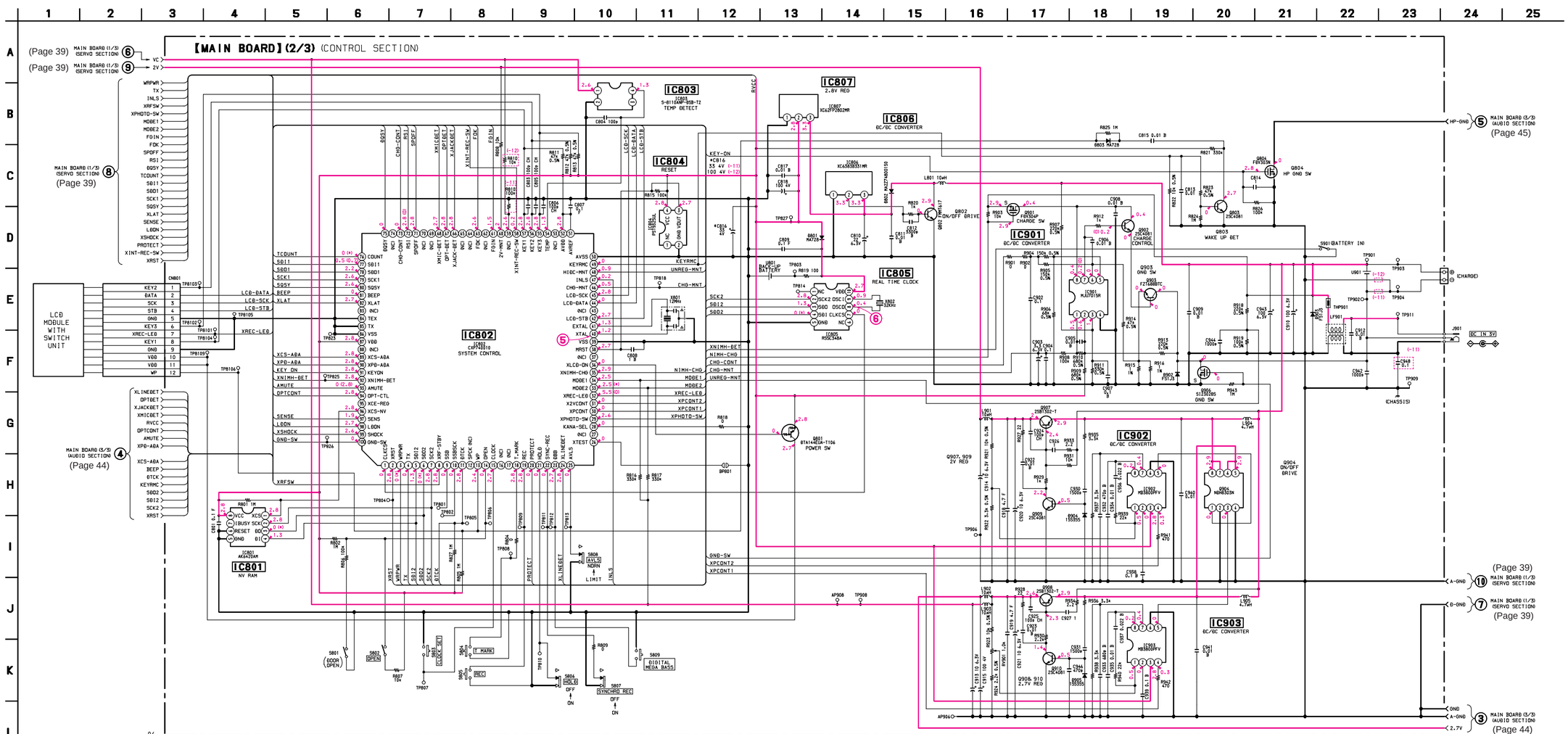
- ▬▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
  ✻ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : PB (digital)
  ⇨ : REC (digital)
- Abbreviation
  HK : Hong Kong model.
  JE : Tourist model.

6-8. SCHEMATIC DIAGRAM — MAIN SECTION (2/3) — • Refer to page 46 for IC Block Diagrams.

• **Waveforms**

⑤ VOLT/DIV : 1V AC
TIME/DIV : 20nsec
2.3Vp-p
12kHz
IC802 (40)

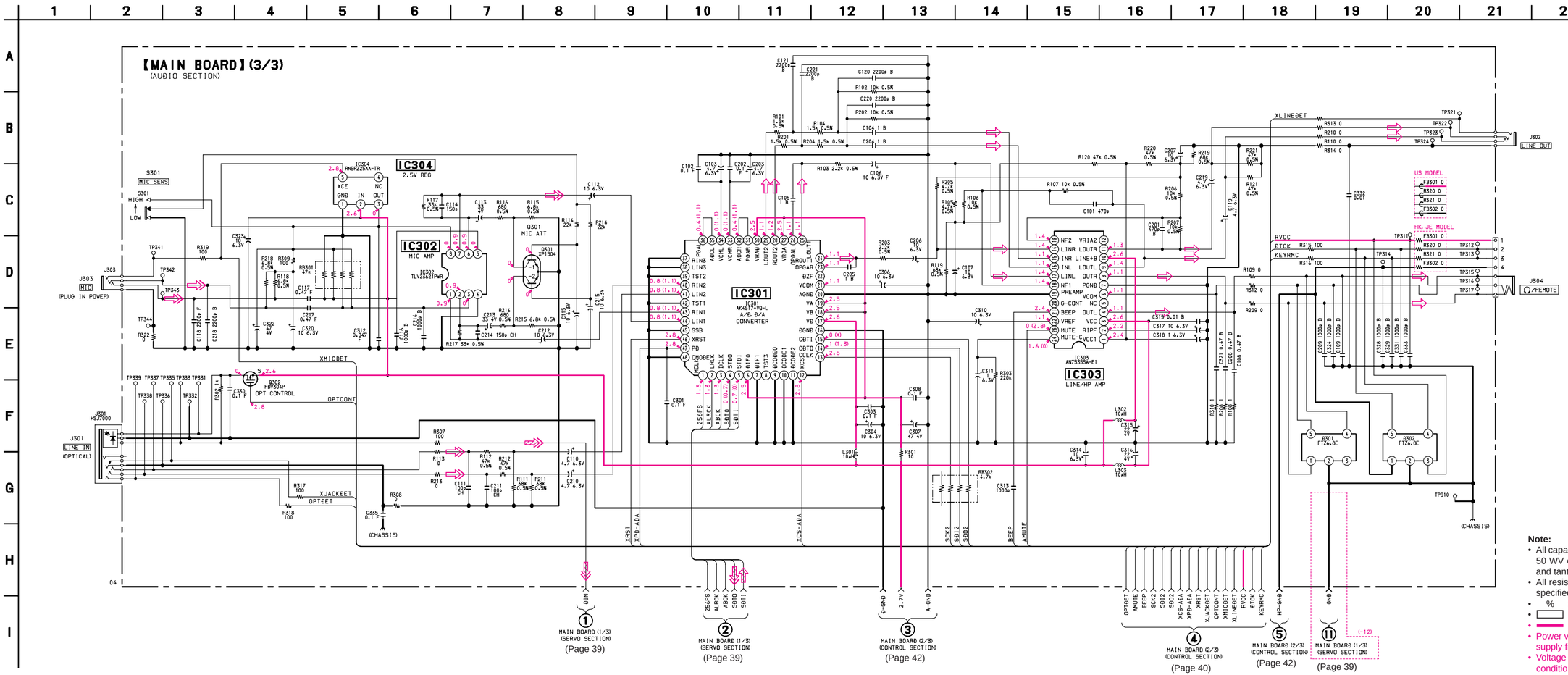
⑥ VOLT/DIV : 0.1V AC
TIME/DIV : 10µsec
1.4Vp-p
32kHz
IC805 (8)



Note:

- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

6-9. SCHEMATIC DIAGRAM — MAIN SECTION (3/3) — • Refer to page 46 for IC Block Diagrams.

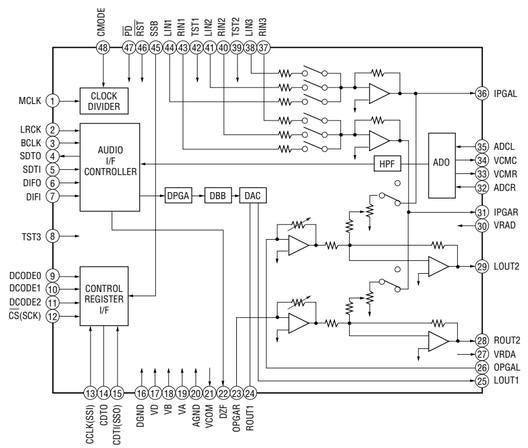


Note:

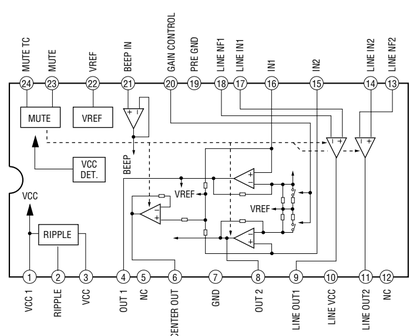
- All capacitors are in µF unless otherwise noted. pF: µµF
  50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PB (analog)
  ⇨ : REC (analog)
  ⇨ : PB (digital)
  ⇨ : REC (digital)
- Abbreviation
  HK : Hong Kong model.
  JE : Tourist model.

• **IC Block Diagrams**

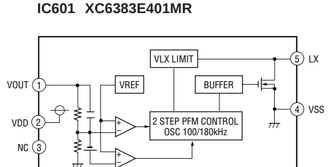
IC301 AK4517-VQ-L



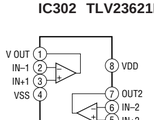
IC303 AN7535SA-E1



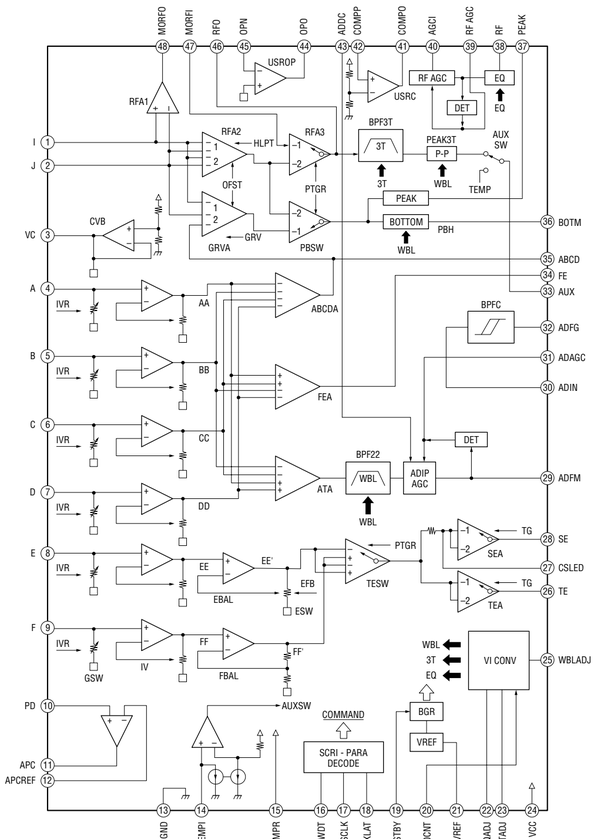
IC601 XC6383E401MR



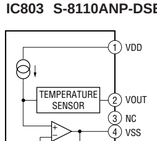
IC302 TLV23621PW



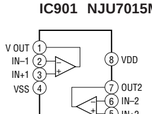
IC501 CXA2523AR



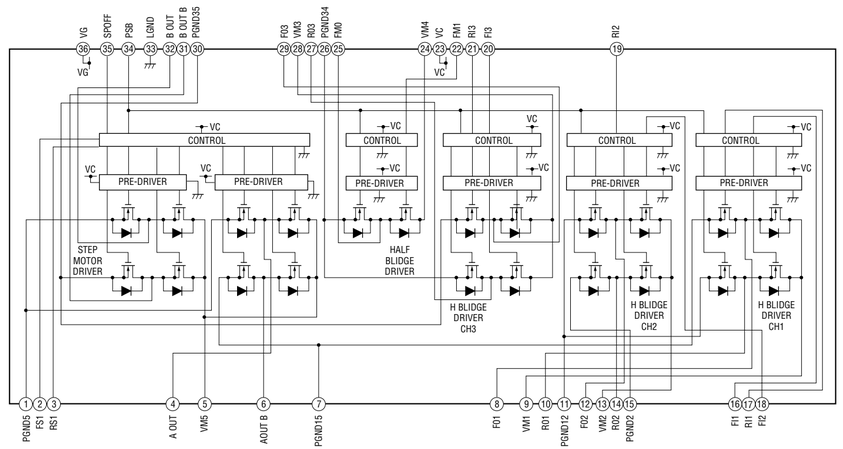
IC803 S-8110ANP-DSB-T2



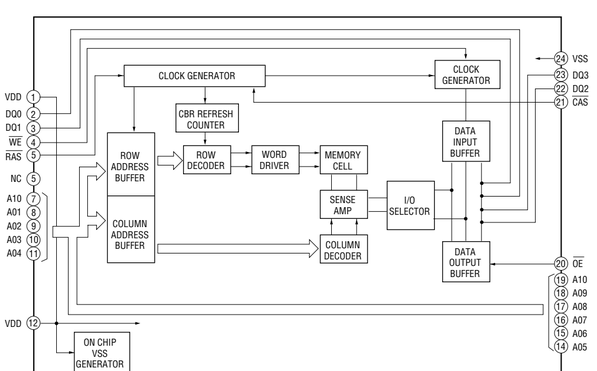
IC901 NJU7015M



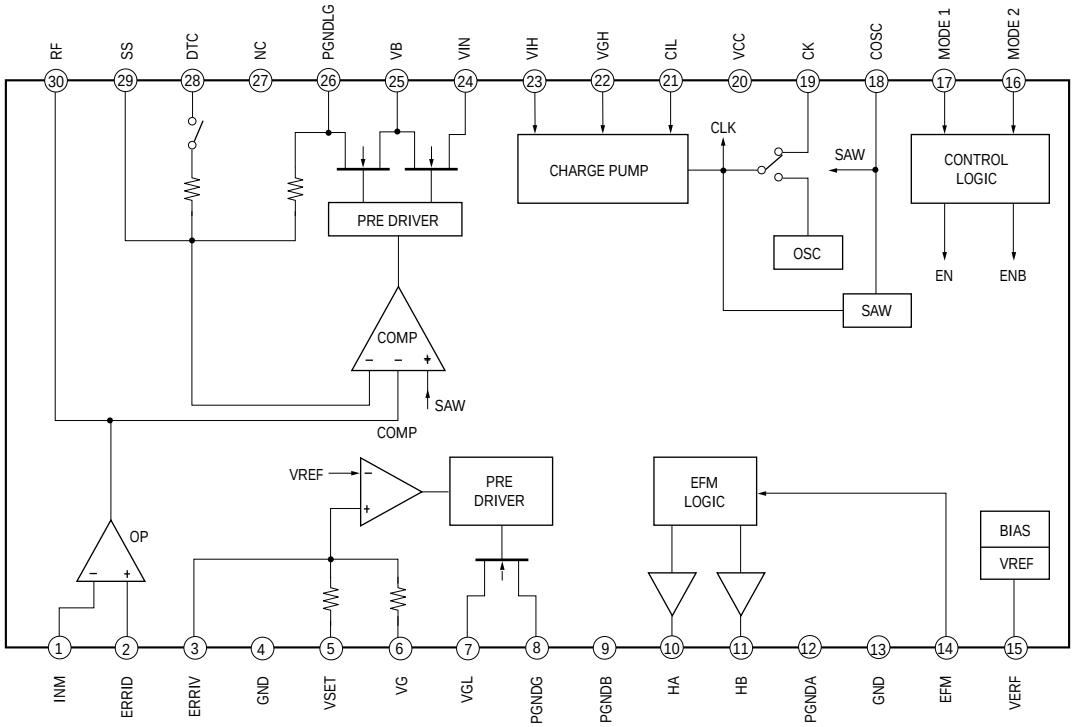
IC505 MPC17A58DTBEL



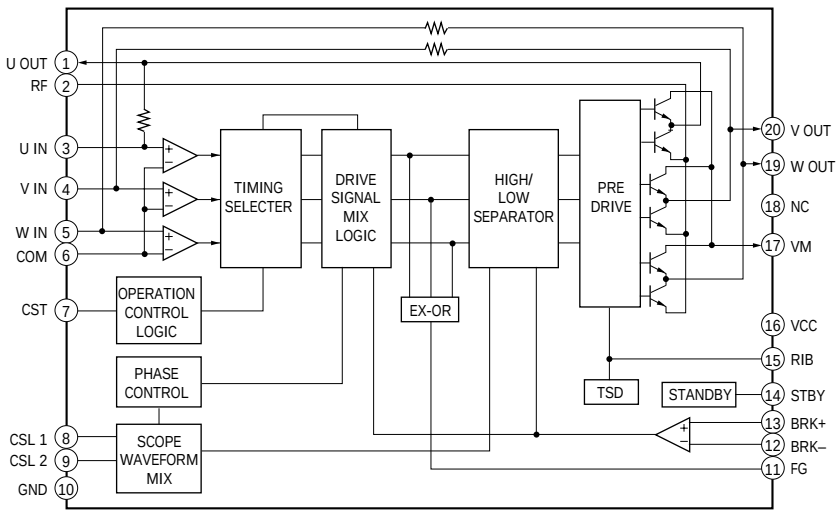
IC509 MN41X17400CTT



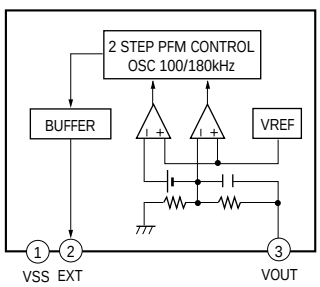
IC602 MPC18A20VMEL



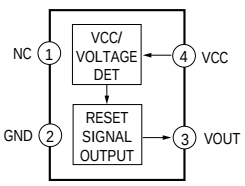
IC701 BA6966FV



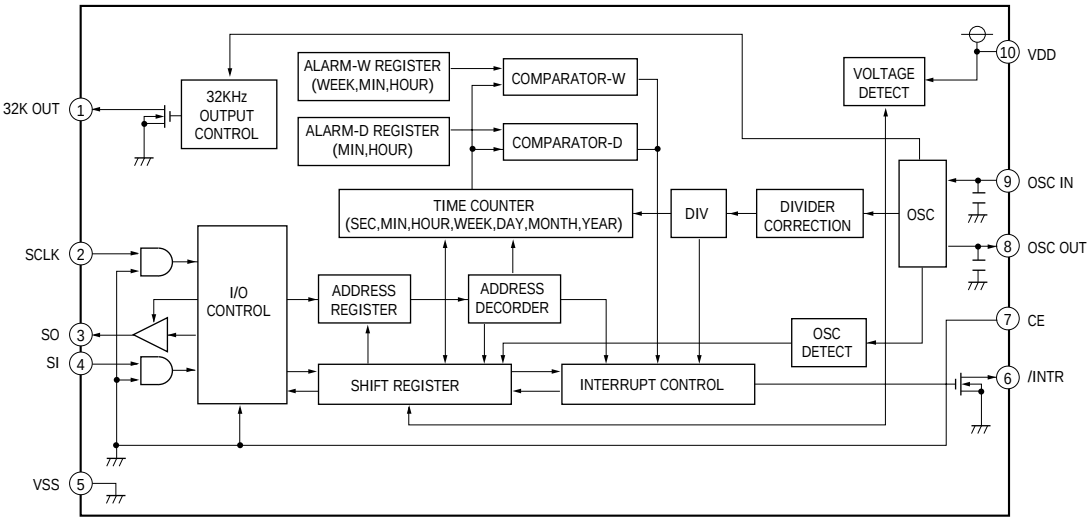
IC806 XC6383B331MR



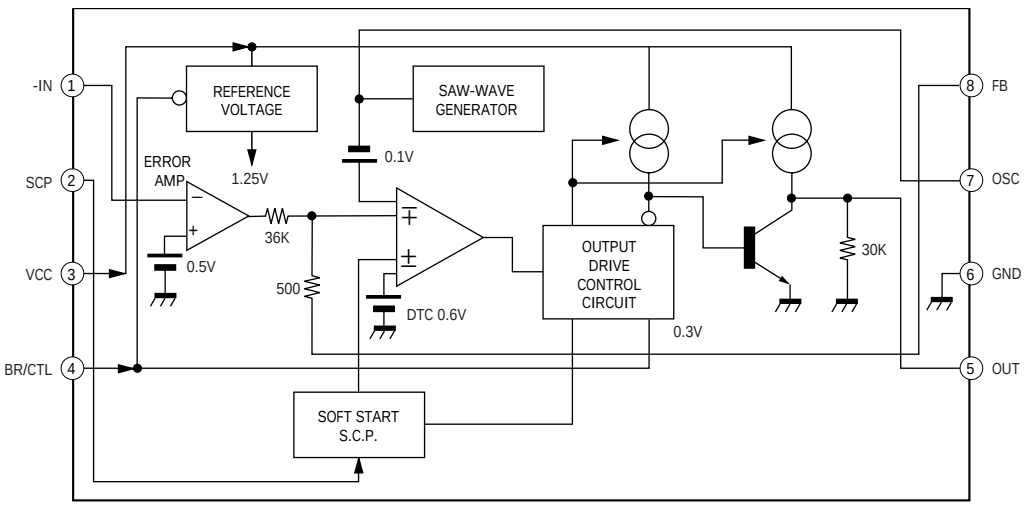
IC804 PST9325UL



IC805 RS5C348A



IC902, 903 MB3800-M03

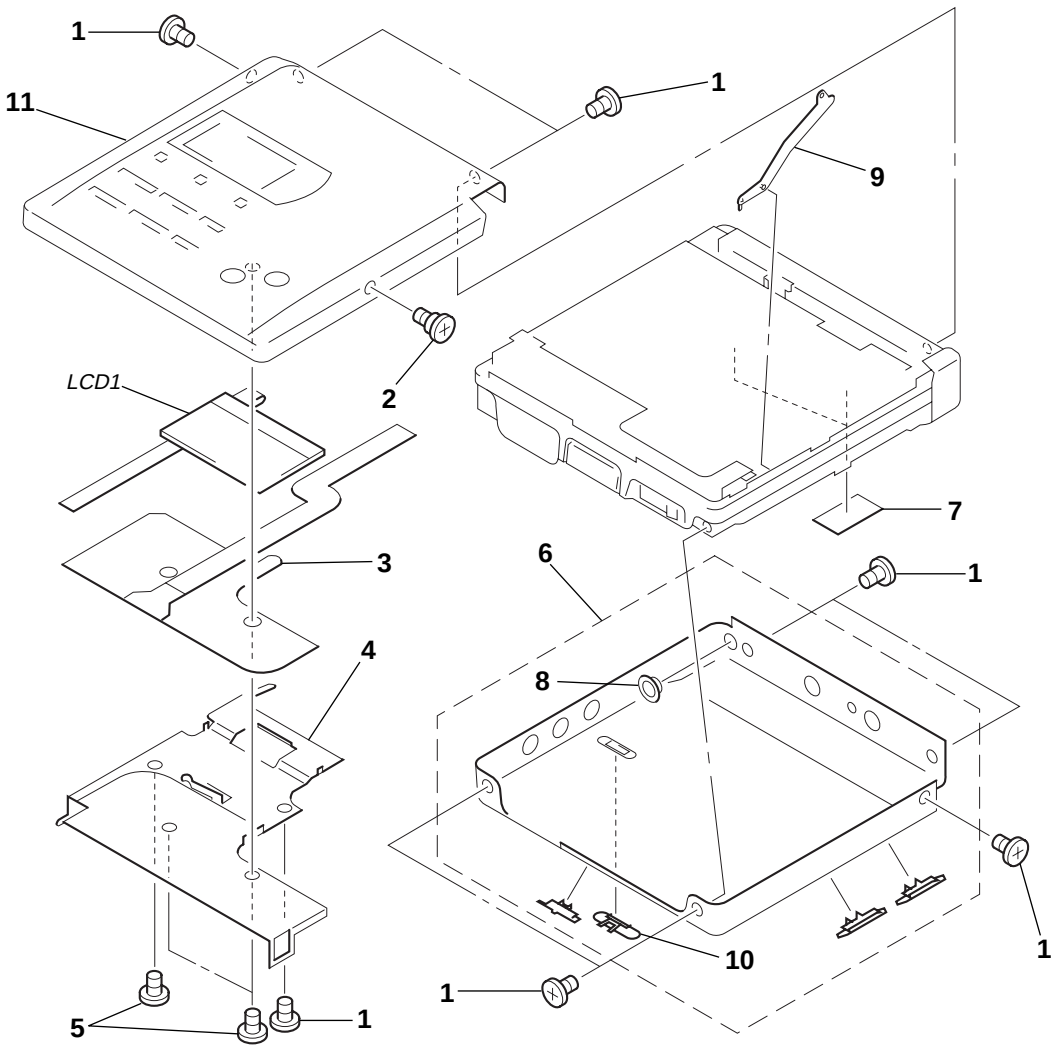


SECTION 7
EXPLODED VIEWS

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  HK : Hong Kong model
  JE : Tourist model
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

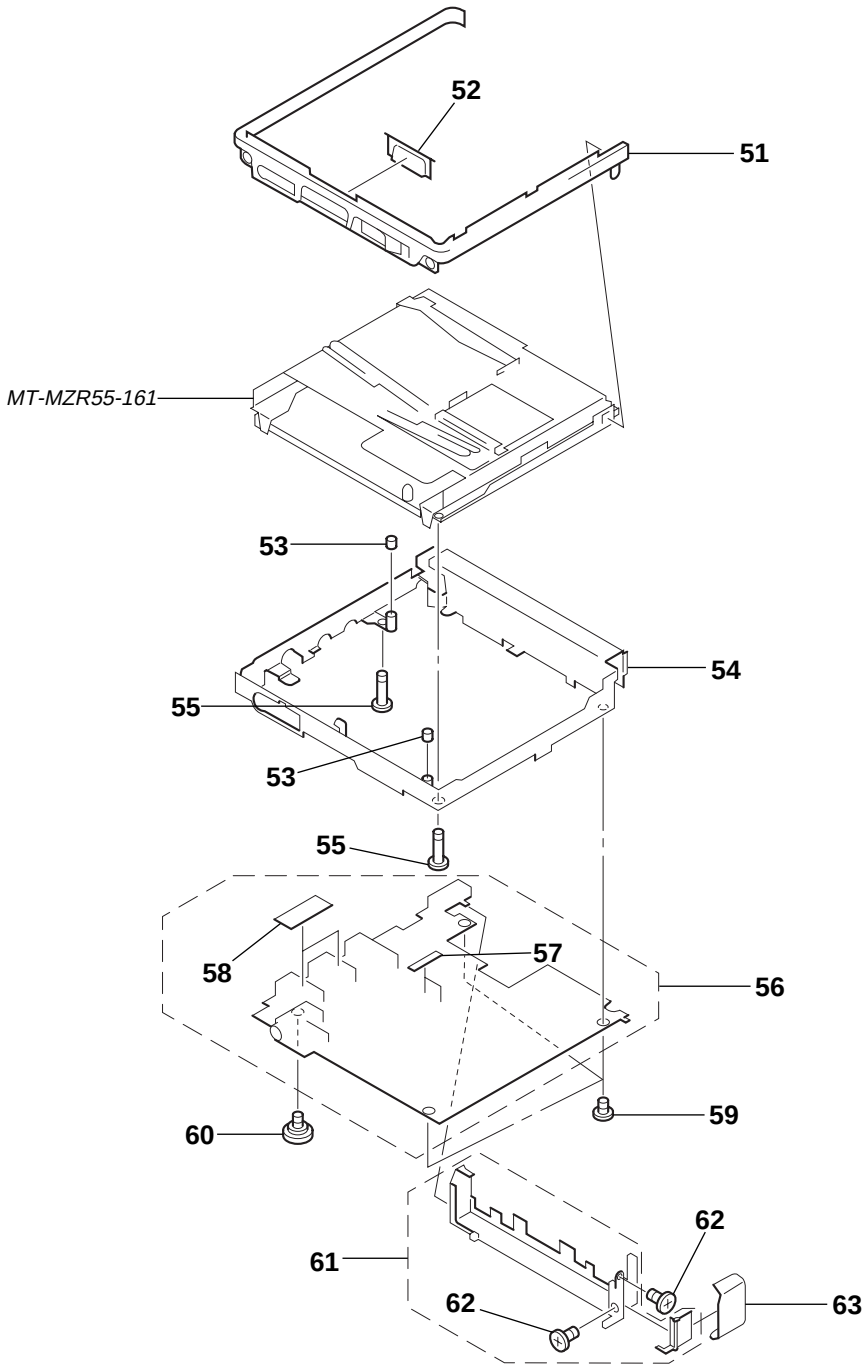
7-1. PANEL SECTION



Ref. No.	Part No.	Description	Remark
1	4-963-883-21	SCREW (M1.4), PRECISION PAN	
2	4-212-847-01	SCREW (CLICK ARM), STEP	
3	1-803-307-11	SWITCH MODULE	
4	4-212-856-01	BRACKET (LCD)	
5	4-984-017-01	SCREW (1.7), TAPPING	
6	X-4950-399-1	PANEL (N) ASSY, BOTTOM (GOLD)	
6	X-4950-400-1	PANEL (L) ASSY, BOTTOM (BLUE)	
6	X-4950-401-1	PANEL (Y) ASSY, BOTTOM (YELLOW) (HK,JE)	
7	4-213-809-01	SHEET (MIC)	
8	3-010-287-01	COLLAR (DC IN)	

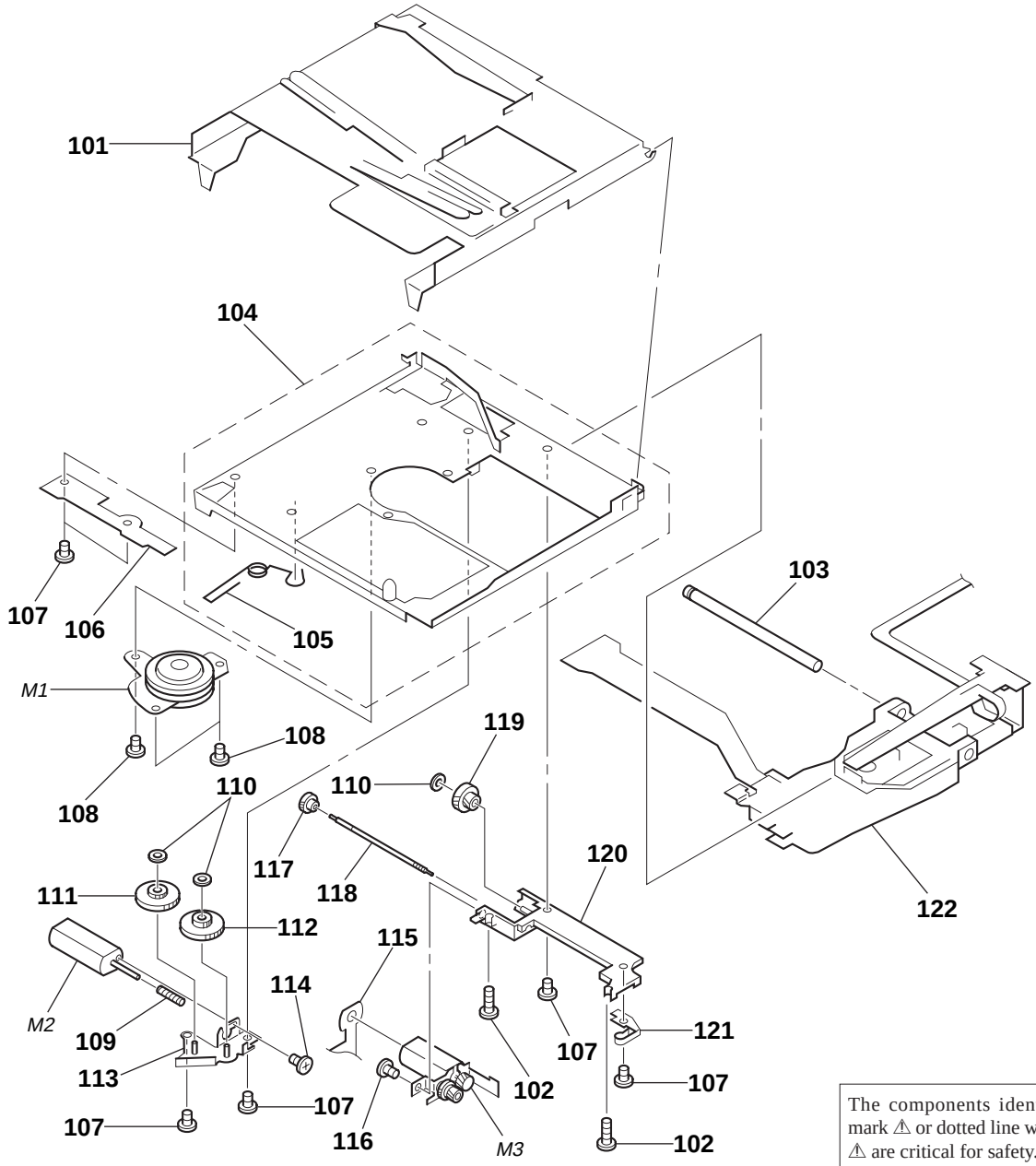
Ref. No.	Part No.	Description	Remark
9	X-4950-406-1	ARM ASSY, CLICK	
10	3-938-805-72	KNOB (DOLBY) (SILVER) ... (for GOLD, YELLOW)	
10	3-938-805-81	KNOB (DOLBY) (PURPLE) ... (for BLUE)	
11	X-4950-559-1	SERVICE ASSY, UPPER PANEL (N) (GOLD)	
11	X-4950-560-1	SERVICE ASSY, UPPER PANEL (L) (BLUE)	
11	X-4950-561-1	SERVICE ASSY, UPPER PANEL (Y) (YELLOW) (HK,JE)	
LCD1	1-803-308-11	LCD MODULE	

7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
51	X-4950-398-1	BELT ASSY, ORNAMENTAL	
52	4-212-844-01	BUTTON (OPEN) (GOLD)	
52	4-212-844-11	BUTTON (OPEN) (SILVER) ... (for BLUE, YELLOW)	
53	4-212-820-01	DAMPER	
54	X-4950-396-1	CHASSIS (MAIN) ASSY	
55	4-212-821-01	SCREW (MD), STEP	
56	A-3323-076-A	MAIN BOARD, COMPLETE (HK,JE)	
56	A-3323-130-A	MAIN BOARD, COMPLETE (US)	
57	4-213-546-01	SHEET (CLV)	
58	4-213-809-01	SHEET (MIC)	
59	3-335-797-91	SCREW (M1.4), TOOTHED LOCK	
60	4-995-436-01	SCREW (HP), STEP	
61	X-4950-397-1	CASE ASSY, BATTERY	
62	4-963-883-21	SCREW (M1.4), PRECISION PAN	
63	4-212-824-01	LID, BATTERY CASE (GOLD)	
63	4-212-824-11	LID, BATTERY CASE (BLUE)	
63	4-212-824-21	LID, BATTERY CASE (YELLOW) (HK,JE)	

7-3. MECHANISM DECK SECTION (MT-MZR55-161)



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
101	X-4950-391-1	HOLDER ASSY	
102	3-704-197-31	SCREW (M1.4X3.0), LOCKING	
103	4-212-312-01	SHAFT, MAIN	
104	X-4950-390-1	CHASSIS ASSY	
105	4-995-585-01	SPRING (LIMITER), TORSION	
106	1-418-079-11	PR UNIT	
107	4-963-883-41	SCREW (M1.4), PRECISION PAN	
108	4-963-883-01	SCREW (M1.4), PRECISION PAN	
109	4-212-308-01	GEAR, WORM	
110	3-338-645-31	WASHER (0.8-2.5)	
111	4-212-310-01	GEAR (RACK)	
112	4-212-309-01	GEAR (WORM WHEEL)	
113	X-4950-392-1	CHASSIS ASSY, GEAR	
114	4-212-862-01	SCREW (M1X1.3), PRECISION	
115	1-671-605-11	MD FLEXIBLE BOARD	
116	3-015-033-01	SCREW (DIA. 1.4X4), PRECISION	
117	4-995-586-01	GEAR (SD)	
118	4-213-858-01	SCREW, LEAD	
119	4-995-578-01	GEAR (SC)	
120	X-4949-131-1	BRACKET (S) ASSY	
121	4-995-571-01	SPRING, THRUST	
⚠122	X-4950-546-1	SERVICE ASSY, OP	
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)	
M2	1-763-174-11	MOTOR, DC (LOADING)	
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED	

MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  HK : Hong Kong model
  JE : Tourist model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example:
  uA.. : μA.. uPA.. : μPA..
  uPB.. : μPB.. uPC.. : μPC.. uPD.. : μPD..
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Board part number suffix
  -11 : Number suffix is -11
  -12 : Number suffix is -12

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3323-076-A	MAIN BOARD, COMPLETE (HK,JE)			
	A-3323-130-A	MAIN BOARD, COMPLETE (US)			
		**********			
		< CAPACITOR >			
C101	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C102	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C103	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C104	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C105	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C106	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C107	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C108	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C109	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C110	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C111	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C112	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C113	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C114	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C115	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C116	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C117	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C118	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C119	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C120	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C121	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C201	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C202	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C203	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C204	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C205	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C207	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C208	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C209	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C210	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C211	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C212	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C213	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C214	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C215	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C216	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C217	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C218	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C219	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C220	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C221	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C301	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C303	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C304	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C306	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C307	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C308	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C310	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C311	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C312	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C313	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C314	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C315	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C316	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C317	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C318	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C319	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C320	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C321	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C322	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C323	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C324	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C328	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C329	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C330	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C331	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C332	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C333	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C335	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C501	1-115-169-11	TANTALUM	10uF	20%	6.3V
C504	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C505	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C506	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C507	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C508	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C509	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C510	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C511	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C512	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C514	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C515	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C518	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remark
C519	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C522	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C524	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C525	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C526	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C529	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C530	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C531	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C532	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C533	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C534	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C536	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C537	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C538	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C541	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C542	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C544	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C545	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C547	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C548	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C549	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C550	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C551	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C552	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C553	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C574	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C600	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C601	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C602	1-109-813-11	CAP,CHIP	100PF	5%	100V
C603	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C604	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C607	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C609	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C701	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
* C703	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C704	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C705	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C706	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C707	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
* C709	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C710	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C712	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C801	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C803	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C804	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C805	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C806	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C807	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C808	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C809	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C810	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C811	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C812	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C813	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

Ref. No.	Part No.	Description			Remark
C814	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C815	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C816	1-119-749-11	TANTAL. CHIP	33uF	20%	4V (-11)
C816	1-127-569-11	TANTAL. CHIP	100uF	20%	4V (-12)
C817	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C818	1-127-569-11	TANTAL. CHIP	100uF	20%	4V
C902	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C903	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C905	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C906	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C907	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C908	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C909	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C910	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C912	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C913	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C914	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C915	1-117-569-11	TANTAL. CHIP	100uF	20%	4V
C918	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C919	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C920	1-115-169-11	TANTALUM	10uF	20%	6.3V
C921	1-115-169-11	TANTALUM	10uF	20%	6.3V
C922	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C923	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C924	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C925	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C926	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C927	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C930	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C931	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C932	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C933	1-164-936-11	CERAMIC CHIP	680PF	10%	16V
C934	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C935	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C936	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C937	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C938	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C939	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C940	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C941	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C942	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C943	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C944	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C946	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C948	1-107-826-91	CERAMIC CHIP	0.1uF		16V (-11)
		< CONNECTOR >			
* CN501	1-764-504-21	CONNECTOR, FPC (ZIF) 22P			
CN502	1-778-164-21	CONNECTOR, FFC/FPC (ZIF) 16P			
CN601	1-778-711-11	CONNECTOR, FFC/FPC (ZIF) 5P			
CN801	1-778-160-11	CONNECTOR, FFC/FPC (ZIF) 12P			
		< DIODE >			
D301	8-719-066-17	DIODE FTZ6.8E-T148			

MAIN

Ref. No.	Part No.	Description	Remark
D302	8-719-066-17	DIODE FTZ6.8E-T148	
D600	8-719-072-10	DIODE FS05J10-TP	
D601	8-719-072-10	DIODE FS05J10-TP	
D602	8-719-421-27	DIODE MA728	
D801	8-719-421-27	DIODE MA728	
D802	8-719-072-27	DIODE MA2Z748001S0	
D803	8-719-421-27	DIODE MA728	
D902	8-719-072-26	DIODE FS1J3-TP	
D903	8-719-072-26	DIODE FS1J3-TP	
D904	8-719-988-62	DIODE 1SS355	
D905	8-719-988-62	DIODE 1SS355	
		< JUMPER RESISTOR >	
FB301	1-216-864-11	METAL CHIP 0 5%	1/16W (HK,JE)
FB301	1-500-444-11	INDUCTOR, FERRITE BEAD	(US)
FB302	1-216-864-11	METAL CHIP 0 5%	1/16W (HK,JE)
FB302	1-500-444-11	INDUCTOR, FERRITE BEAD	(US)
FB500	1-216-864-11	METAL CHIP 0 5%	1/16W
FB501	1-216-864-11	METAL CHIP 0 5%	1/16W
FB502	1-216-864-11	METAL CHIP 0 5%	1/16W (HK,JE)
FB502	1-500-444-11	INDUCTOR, FERRITE BEAD	(US)
FB503	1-216-864-11	METAL CHIP 0 5%	1/16W (HK,JE)
FB503	1-500-444-11	INDUCTOR, FERRITE BEAD	(US)
		< IC >	
IC301	8-759-559-61	IC AK4517-VQ-L	
IC302	8-759-536-71	IC TLV23621PWR	
IC303	8-759-559-58	IC AN7535SA-E1	
IC304	8-759-559-91	IC RN5RZ25AA-TR	
IC501	8-752-080-95	IC CXA2523AR	
IC503	8-752-384-47	IC CXD2652AR	
IC505	8-759-559-60	IC MPC17A58DTBEL	
IC509	8-759-559-57	IC MN41X17400CTT-10T1	
IC510	8-759-487-20	IC PST9330UL	
IC601	8-759-559-94	IC XC6383E401MR	
IC602	8-759-329-43	IC MPC18A20VM	
IC701	8-759-559-62	IC BA6966FV-E2	
IC801	8-759-468-72	IC AK6420AM-E2	
IC802	8-752-897-08	IC CXP740010-008R	
IC803	8-759-559-93	IC S-8110ANP-DSB-T2	
IC804	8-759-559-95	IC PST9325UL	
IC805	8-759-560-17	IC RS5C348A-E2	
IC806	8-759-530-10	IC XC6383B331MR	
IC807	8-759-569-24	IC XC62FP2802MR	
IC901	8-759-559-89	IC NJU7015R-TE2	
IC902	8-759-427-21	IC MB3800PFV-G-BND-EF	
IC903	8-759-427-21	IC MB3800PFV-G-BND-EF	
J301	8-749-015-08	IC SJ7000 (LINE IN (OPTICAL))	

Ref. No.	Part No.	Description	Remark
		< JACK >	
J302	1-779-881-11	JACK (LINE OUT)	
J303	1-779-881-21	JACK (MIC)	
J304	1-778-179-11	JACK (🎧/REMOTE)	
J901	1-785-383-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 3V)
		< COIL >	
L301	1-414-754-11	INDUCTOR 10uH	
L302	1-414-754-11	INDUCTOR 10uH	
L303	1-414-754-11	INDUCTOR 10uH	
L501	1-414-398-41	INDUCTOR 10uH	
L502	1-414-398-41	INDUCTOR 10uH	
L504	1-414-398-41	INDUCTOR 10uH	
L506	1-410-389-31	INDUCTOR CHIP 47uH	
L507	1-410-389-31	INDUCTOR CHIP 47uH	
L508	1-410-389-31	INDUCTOR CHIP 47uH	
L509	1-410-389-31	INDUCTOR CHIP 47uH	
L510	1-414-398-41	INDUCTOR 10uH	
L511	1-410-389-31	INDUCTOR CHIP 47uH	
L601	1-414-404-41	INDUCTOR 100uH	
L602	1-412-330-41	INDUCTOR 330uH	
L603	1-414-398-41	INDUCTOR 10uH	
L801	1-414-398-41	INDUCTOR 10uH	
L901	1-414-398-41	INDUCTOR 10uH	
L902	1-414-398-41	INDUCTOR 10uH	
L903	1-414-398-41	INDUCTOR 10uH	
L904	1-424-673-41	COIL, CHOKE 4.7uH	
L905	1-424-673-41	COIL, CHOKE 4.7uH	
		< EMI FILTER >	
LF901	1-416-405-21	FILTER, CHIP EMI (COMMON MODE)	
		< TRANSISTOR >	
Q301	8-729-012-88	TRANSISTOR XP1504-(TX)	
Q302	8-729-046-49	TRANSISTOR FDV304P	
Q502	8-729-046-46	TRANSISTOR XN04407001SO	
Q503	8-729-930-13	TRANSISTOR UMH2	
Q601	8-729-046-43	TRANSISTOR HAT2051T-EL	
Q602	8-729-046-42	TRANSISTOR HAT2050T-EL	
Q701	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q801	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q802	8-729-041-51	TRANSISTOR FMMT617TA	
Q803	8-729-905-35	TRANSISTOR 2SC4081-R	
Q804	8-729-046-48	TRANSISTOR FDV303N	
Q901	8-729-046-49	TRANSISTOR FDV304P	
Q902	8-729-905-35	TRANSISTOR 2SC4081-R	
Q903	8-729-047-10	TRANSISTOR FZT688BTC	
Q904	8-729-046-50	TRANSISTOR NDH8303N	
Q906	8-729-046-45	TRANSISTOR SI2302DS-T1	
Q907	8-729-822-62	TRANSISTOR 2SB1302-T	
Q908	8-729-822-62	TRANSISTOR 2SB1302-T	

Ref. No.	Part No.	Description			Remark
Q909	8-729-905-35	TRANSISTOR 2SC4081-R			
Q910	8-729-905-35	TRANSISTOR 2SC4081-R			
		< RESISTOR >			
R101	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R102	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R103	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R104	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R105	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R106	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R107	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R108	1-218-446-11	METAL CHIP	1	5%	1/16W
R109	1-216-864-11	METAL CHIP	0	5%	1/16W
R110	1-216-864-11	METAL CHIP	0	5%	1/16W
R111	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R112	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R113	1-216-864-11	METAL CHIP	0	5%	1/16W
R114	1-216-837-11	METAL CHIP	22K	5%	1/16W
R115	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R116	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R117	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R118	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R119	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R120	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R121	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R201	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R202	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R203	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R204	1-218-851-11	RES, CHIP	1.5K	0.50%	1/16W
R205	1-218-863-11	RES, CHIP	4.7K	0.50%	1/16W
R206	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R207	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R208	1-218-446-11	METAL CHIP	1	5%	1/16W
R209	1-216-864-11	METAL CHIP	0	5%	1/16W
R210	1-216-864-11	METAL CHIP	0	5%	1/16W
R211	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R212	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R213	1-216-864-11	METAL CHIP	0	5%	1/16W
R214	1-216-837-11	METAL CHIP	22K	5%	1/16W
R215	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R216	1-218-843-11	RES, CHIP	680	0.50%	1/16W
R217	1-218-883-11	RES, CHIP	33K	0.50%	1/16W
R218	1-218-867-11	RES, CHIP	6.8K	0.50%	1/16W
R219	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R220	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R221	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R301	1-216-797-11	METAL CHIP	10	5%	1/16W
R302	1-216-821-11	METAL CHIP	1K	5%	1/16W
R303	1-216-849-11	METAL CHIP	220K	5%	1/16W
R307	1-216-809-11	METAL CHIP	100	5%	1/16W
R308	1-216-864-11	METAL CHIP	0	5%	1/16W
R309	1-216-809-11	METAL CHIP	100	5%	1/16W
R310	1-218-446-11	METAL CHIP	1	5%	1/16W
R312	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description			Remark
R313	1-216-864-11	METAL CHIP	0	5%	1/16W
R314	1-216-864-11	METAL CHIP	0	5%	1/16W
R315	1-216-809-11	METAL CHIP	100	5%	1/16W
R316	1-216-809-11	METAL CHIP	100	5%	1/16W
R317	1-216-809-11	METAL CHIP	100	5%	1/16W
R318	1-216-809-11	METAL CHIP	100	5%	1/16W
R319	1-216-809-11	METAL CHIP	100	5%	1/16W
R320	1-216-864-11	METAL CHIP	0	5%	1/16W (HK,JE)
R320	1-500-444-11	INDUCTOR, FERRITE BEAD			(US)
R321	1-216-864-11	METAL CHIP	0	5%	1/16W (HK,JE)
R321	1-500-444-11	INDUCTOR, FERRITE BEAD			(US)
R322	1-216-864-11	METAL CHIP	0	5%	1/16W
R500	1-216-864-11	METAL CHIP	0	5%	1/16W (HK,JE)
R500	1-500-444-11	INDUCTOR, FERRITE BEAD			(US)
R501	1-216-835-11	METAL CHIP	15K	5%	1/16W
R502	1-216-835-11	METAL CHIP	15K	5%	1/16W
R503	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R504	1-216-859-11	RES, CHIP	1.5M	5%	1/16W
R505	1-218-446-11	METAL CHIP	1	5%	1/16W
R506	1-216-811-11	METAL CHIP	150	5%	1/16W
R507	1-216-833-11	METAL CHIP	10K	5%	1/16W
R508	1-216-817-11	METAL CHIP	470	5%	1/16W
R509	1-216-853-11	METAL CHIP	470K	5%	1/16W
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-864-11	METAL CHIP	0	5%	1/16W (-12)
R513	1-216-843-11	METAL CHIP	68K	5%	1/16W
R514	1-216-864-11	METAL CHIP	0	5%	1/16W
R515	1-216-864-11	METAL CHIP	0	5%	1/16W
R516	1-216-821-11	METAL CHIP	1K	5%	1/16W
R517	1-216-803-11	METAL CHIP	33	5%	1/16W
R519	1-216-864-11	METAL CHIP	0	5%	1/16W
R520	1-216-841-11	METAL CHIP	47K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W
R522	1-216-864-11	METAL CHIP	0	5%	1/16W
R523	1-216-817-11	METAL CHIP	470	5%	1/16W (US)
R523	1-216-864-11	METAL CHIP	0	5%	1/16W (HK,JE)
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-853-11	METAL CHIP	470K	5%	1/16W
R528	1-216-821-11	METAL CHIP	1K	5%	1/16W
R529	1-216-821-11	METAL CHIP	1K	5%	1/16W
R530	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R545	1-216-845-11	METAL CHIP	100K	5%	1/16W
R546	1-216-841-11	METAL CHIP	47K	5%	1/16W
R549	1-216-845-11	METAL CHIP	100K	5%	1/16W
R554	1-216-821-11	METAL CHIP	1K	5%	1/16W
R559	1-216-811-11	METAL CHIP	150	5%	1/16W
R563	1-216-839-11	METAL CHIP	33K	5%	1/16W
R564	1-216-843-11	METAL CHIP	68K	5%	1/16W

MAIN

Ref. No.	Part No.	Description			Remark
R565	1-216-849-11	METAL CHIP	220K	5%	1/16W
R602	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R603	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R702	1-216-833-11	METAL CHIP	10K	5%	1/16W
R703	1-216-815-11	METAL CHIP	330	5%	1/16W
R704	1-216-833-11	METAL CHIP	10K	5%	1/16W
R705	1-219-724-11	METAL CHIP	1	1%	1/4W
R706	1-216-835-11	METAL CHIP	15K	5%	1/16W
R710	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-857-11	METAL CHIP	1M	5%	1/16W
R802	1-216-857-11	METAL CHIP	1M	5%	1/16W
R804	1-216-864-11	METAL CHIP	0	5%	1/16W
R805	1-216-857-11	METAL CHIP	1M	5%	1/16W
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W
R807	1-216-833-11	METAL CHIP	10K	5%	1/16W
R808	1-216-833-11	METAL CHIP	10K	5%	1/16W
R809	1-216-864-11	METAL CHIP	0	5%	1/16W
R810	1-216-845-11	METAL CHIP	100K	5%	1/16W (-11)
R810	1-216-833-11	METAL CHIP	10K	5%	1/16W (-12)
R811	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R812	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R813	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R815	1-216-845-11	METAL CHIP	100K	5%	1/16W
R816	1-216-851-11	METAL CHIP	330K	5%	1/16W
R817	1-216-851-11	METAL CHIP	330K	5%	1/16W
R818	1-216-864-11	METAL CHIP	0	5%	1/16W
R819	1-216-809-11	METAL CHIP	100	5%	1/16W
R820	1-216-821-11	METAL CHIP	1K	5%	1/16W
R821	1-216-851-11	METAL CHIP	330K	5%	1/16W
R822	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R823	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R824	1-216-857-11	METAL CHIP	1M	5%	1/16W
R825	1-216-857-11	METAL CHIP	1M	5%	1/16W
R826	1-216-845-11	METAL CHIP	100K	5%	1/16W
R827	1-216-857-11	METAL CHIP	1M	5%	1/16W
R901	1-216-864-11	METAL CHIP	0	5%	1/16W
R902	1-216-864-11	METAL CHIP	0	5%	1/16W
R903	1-216-833-11	METAL CHIP	10K	5%	1/16W
R904	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R905	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R906	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R907	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W
R909	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R910	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R911	1-218-907-11	RES, CHIP	330K	0.50%	1/16W
R912	1-216-821-11	METAL CHIP	1K	5%	1/16W
R913	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R914	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R915	1-219-724-11	METAL CHIP	1	1%	1/4W
R916	1-219-724-11	METAL CHIP	1	1%	1/4W
R918	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R919	1-218-895-11	RES, CHIP	100K	0.50%	1/16W

Ref. No.	Part No.	Description			Remark
R921	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R922	1-218-859-11	RES, CHIP	3.3K	0.50%	1/16W
R923	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R924	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R927	1-216-801-11	METAL CHIP	22	5%	1/16W
R928	1-216-801-11	METAL CHIP	22	5%	1/16W
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W
R930	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R931	1-216-833-11	METAL CHIP	10K	5%	1/16W
R933	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R934	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R935	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R936	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R937	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R938	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R939	1-216-837-11	METAL CHIP	22K	5%	1/16W
R940	1-216-837-11	METAL CHIP	22K	5%	1/16W
R941	1-216-817-11	METAL CHIP	470	5%	1/16W
R942	1-216-817-11	METAL CHIP	470	5%	1/16W
R943	1-216-857-11	METAL CHIP	1M	5%	1/16W
		< NETWORK RESISTOR >			
RB301	1-233-971-11	RES, NETWORK (CHIP TYPE)	47K		
RB302	1-233-965-11	RES, NETWORK (CHIP TYPE)	4.7K		
RB501	1-233-963-21	RES, NETWORK (CHIP TYPE)	2.2K		
		< VARIABLE RESISTOR >			
RV901	1-223-991-21	RES, CARBON ADJ	1K		
		< SWITCH >			
S301	1-762-078-11	SWITCH, SLIDE (MIC SENS)			
S801	1-762-805-21	SWITCH, PUSH (1 KEY) (DOOR OPEN)			
S802	1-572-467-61	SWITCH, PUSH (1 KEY) (OPEN)			
S803	1-572-921-11	SWITCH, KEY BOARD (CLOCK SET)			
S804	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (T MARK)			
S805	1-771-331-41	SWITCH, PUSH (1 KEY) (REC)			
S806	1-762-078-11	SWITCH, SLIDE (HOLD)			
S807	1-762-078-11	SWITCH, SLIDE (SYNCHRO REC)			
S808	1-762-078-11	SWITCH, SLIDE (AVLS)			
S809	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (DIGITAL MEGA BASS)			
S901	1-771-331-41	SWITCH, PUSH (1 KEY) (BATTERY IN)			
		< THERMISTOR >			
THP901	1-533-817-21	THERMISTOR			
		< BATTERY >			
* U801	1-528-924-11	BATTERY			
		< VIBRATOR >			
X501	1-767-498-11	OSCILLATOR, CRYSTAL (22.5MHz)			
X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)			
X802	1-579-886-11	VIBRATOR, CRYSTAL (32kHz)			

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
3	1-803-307-11	SWITCH MODULE	
106	1-418-079-11	PR UNIT	
115	1-671-605-11	MD FLEXIBLE BOARD	
⚠122	X-4950-546-1	SERVICE ASSY, OP	
LCD1	1-803-308-11	LCD MODULE	
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)	
M2	1-763-174-11	MOTOR, DC (LOADING)	
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-418-002-12	REMOTE CONTROL UNIT (RM-MZR55)	
⚠	1-418-028-11	ADAPTOR, AC (AC-MZR55) (JE)	
⚠	1-418-049-11	ADAPTOR, AC (AC-MZR55) (HK)	
⚠	1-418-275-11	ADAPTOR, AC (AC-MZR55) (US)	
	1-528-842-11	BATTERY, NICKEL HYDROGEN (NH-14WM)	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (JE)	
	1-759-693-11	CASE, BATTERY	
	1-779-504-11	CONNECTOR, OPTICAL	
	3-008-521-01	CASE, BATTERY CHARGE	
	3-864-987-11	MANUAL, INSTRUCTION (GREEK,SPANISH, PORTUGUESE,SWEDISH,FINNISH) (JE)	
	3-864-987-21	MANUAL, INSTRUCTION (ENGLISH) (US,HK)	
	3-864-987-41	MANUAL, INSTRUCTION (CHINESE,KOREAN, URDU) (HK,JE)	
	4-213-808-01	CARD	
	4-972-888-01	CASE, CARRYING	
	8-953-218-90	HEADPHONE MDR-E838SP//K SET (HK,JE)	
	8-953-278-90	HEADPHONE MDR-A34SP SET (US)	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

9-924-964-12

Sony Corporation
Personal A&V Products Company

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(Shibaura)

MZ-R55

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.2 1999. 02

US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
MD Mechanism Type	MT-MZR55-161
Optical Pick-up Type	KMS-280A

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 780 nm
Emission duration: continuous
Laser output: less than 44.6 µW
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time
Maximum 74 minutes (MDW-74, stereo recording)
Maximum 148 minutes (MDW-74, monaural recording)

Revolutions
400 rpm to 900 rpm (CLV)

Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency
44.1 kHz

Sampling rate converter
Input: 32 kHz / 44.1 kHz / 48 kHz

Coding
Adaptive TRansform Acoustic Coding (ATRAC)

Modulation system
EFM (Eight to Fourteen Modulation)

Number of channels
2 stereo channels
1 monaural channel

Frequency response
20 to 20,000 Hz ± 3 dB

Wow and Flutter
Below measurable limit

Inputs
Microphone: stereo mini-jack, 0.22-0.78 mV
Line in: stereo mini-jack, 69-194 mV
Optical (Digital) in: optical (digital) mini-jack

Outputs
Headphones: stereo mini-jack, maximum output level 5 mW+ 5 mW, load impedance 16 ohm
Line out: stereo mini-jack, 194 mV, load impedance 10 kilohm

General

Power requirements
Sony AC Power Adaptor (supplied) connected at the DC IN 3V jack:
- 120 V AC, 60 Hz (US model)
- 220-240 V AC, 50/60 Hz (Hong Kong model)
- 100-240 V AC, 50/60 Hz (Tourist model)

Nickel metal hydride rechargeable battery NH-14WM (supplied)
Two LR6 (size AA) alkaline batteries (not supplied)

– Continued on next page –

PORTABLE MINIDISC RECORDER

MICROFILM

SONY®

Battery operation time

Batteries	Recording	Playback
NH-14WM nickel metal hydride rechargeable battery	Approx. 2.5 hours	Approx. 4 hours
Two LR6 (SG) Sony alkaline dry batteries	Approx. 5 hours	Approx. 10 hours
NH-14WM + Two LR6 (SG)	Approx. 9.5 hours	Approx. 16 hours

Dimensions

Approx. 78.9 × 18.9 × 84 mm (w/h/d)
(3 1/8 × 3/4 × 3 3/8 in.)

Mass

Approx. 147 g (5.2 oz) the recorder only
Approx. 190 g (6.7 oz) incl. a recordable MD, and NH-14WM nickel metal hydride rechargeable battery

Supplied accessories

AC power adaptor AC-MZR55 (1)
Headphones with a remote control MDR-A34SP (US model)/MDR-E838SP (Hong Kong, Tourist model) and RM-MZR55 (1)
NH-14WM nickel metal hydride rechargeable battery (1)
Dry battery case (1)
Rechargeable battery carrying case (1)
Carrying pouch (1)
AC plug adaptor (1) (Tourist model only)

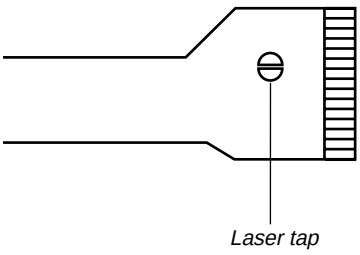
Design and specifications are subject to change without notice.

Precautions for Laser Diode Emission Check

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

Precautions for Using Optical Pick-up (KMS-280A)

As the laser diode inside the optical pick-up damages by static electricity easily, solder the laser tap of the Optical pick-up flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the Optical pick-up flexible board with care as it breaks easily.



Optical Pick-up flexible board

This MiniDisc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

“MD WALKMAN” is a trademark of Sony Corporation.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.**

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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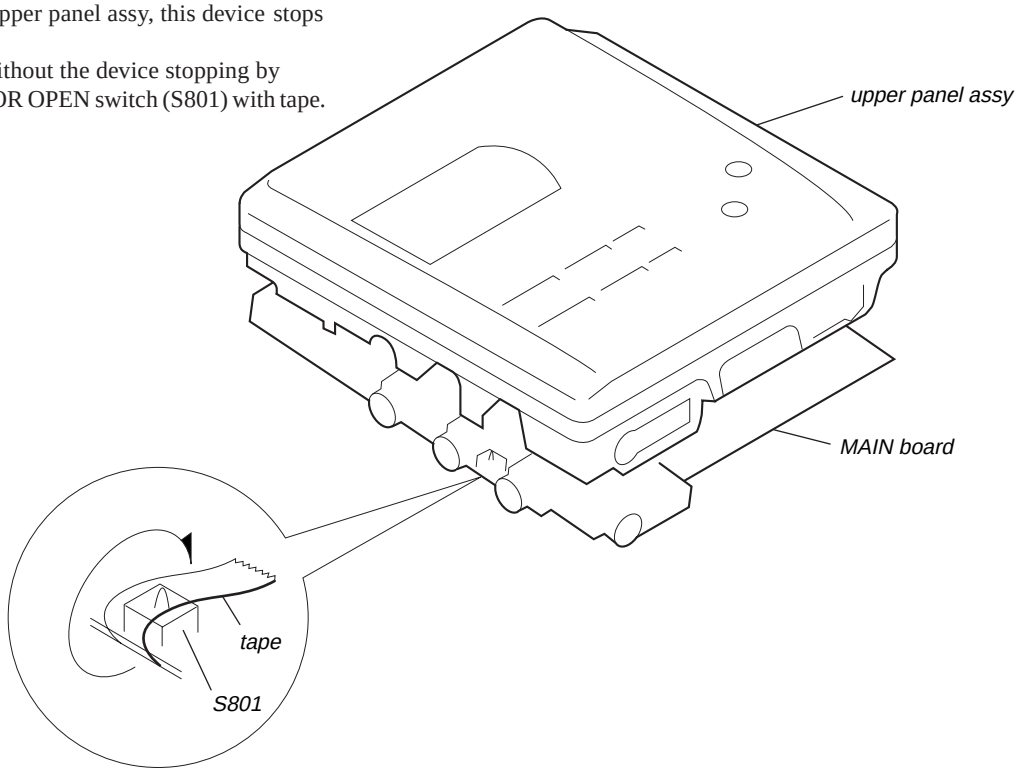
SERVICING NOTE

1) When repairing this device with the power on, if you remove the main board or open the upper panel assy, this device stops working.
In this case, you can work without the device stopping by fastening the hook of the DOOR OPEN switch (S801) with tape.



2) This set is designed to perform automatic adjustment for each adjustment and write its value to EEPROM. Therefore, when EEPROM (IC801) has been replaced in service, be sure to perform automatic adjustment and write resultant values to the new EEPROM.
Refer to page 12 for details.

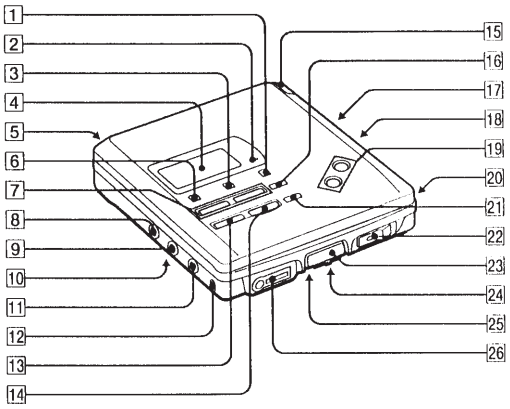
SECTION 1
GENERAL

This section is extracted from instruction manual.

Looking at the controls

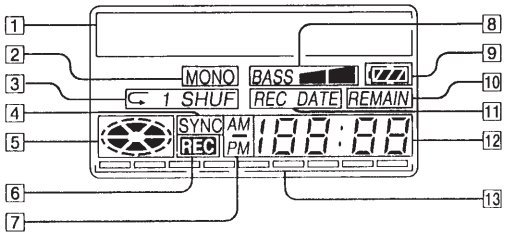
See pages in ( ) for more details.

The recorder



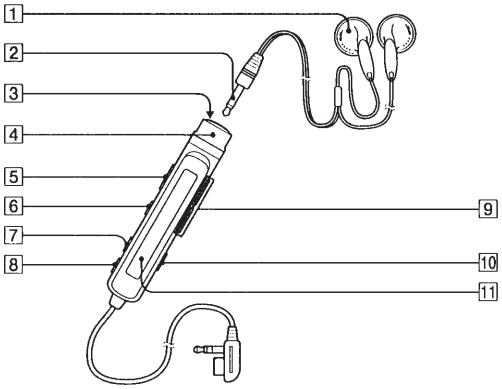
1 END SEARCH button (7)
2 REC indicator (14)
3 DISPLAY button (14, 19)
4 Display window (14, 19)
5 DC IN 3V jack (at the rear) (6)
6 MODE button (17)
7 I◄◄ / ►►I (search / AMS) button (7, 9)
8 LINE IN (OPTICAL) jack (6, 11)
9 MIC (PLUG IN POWER) jack (12)
10 MIC SENS switch (at the bottom) (12)
11 LINE OUT jack (20)
12 DIGITAL MEGA BASS button (18)
13 ■/CHARGE button (7, 9, 27)
14 ► (play) button (7, 9)
15 Battery compartment (at the rear) (27)
16 EDIT/ENTER button (21)
17 AVLS switch (at the bottom) (18)
18 SYNCHRO REC (synchro-recording) switch (11)
19 VOLUME +/– button (9)
20 T MARK button (21)
21 ❚❚ (pause) button (7, 9)
22 REC (record) switch (7)
23 OPEN button (6)
24 HOLD switch (20)
25 CLOCK SET button (at the bottom) (16)
26 Ω (headphones)/REMOTE jack (8)

The display window



1 Character information display (14, 19)
Displays the disc and track names, date, error messages, track numbers, etc.
2 MONO (monaural) indication
3 Play mode indication
Shows the play mode of the MD.
4 SYNC (synchro-recording) indication
5 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
6 REC indication (7)
Lights up while recording. When flashing, the recorder is in record standby mode.
7 AM/PM indication (16)
Lights up along with the time indication in the 12-hour system.
8 Mega bass indication (18)
9 Battery indication (27)
Shows battery condition.
10 REMAIN (remaining time/tracks) indication (14, 19)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
11 REC DATE (recorded/current date) indication
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
12 Time display (14, 19)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
13 Level meter
Shows the volume of the MD being played or recorded.

The headphones with a remote control



1 Headphones
Can be replaced with optional headphones.
2 Stereo mini plug
3 ■ (stop) button (7,9)
4 Control (9)
To play, turn to ► • ►►I during stop.
Turn to ► • ►►I during play to search the beginning of the succeeding track; hold in this position to fast-forward.
Turn to I◄◄ during play to search the beginning of the preceeding track; hold in this position to rewind.
5 HOLD switch (20)
Slide to lock the controls of the remote control.
6 ❚❚ (pause) button (7,9)
7 PLAY MODE button (17)
8 DISPLAY button (15, 19)
9 VOL (volume) +/– buttons (9)
10 TRACK MARK button (22)
11 Display window (15, 19)

SECTION 2
SELF-DIAGNOSTIC

2-1. GENERAL

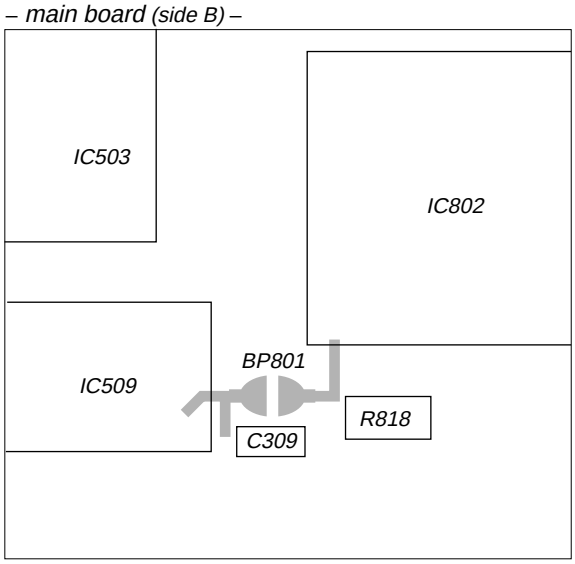
This set uses the self-diagnostic system in which if an error occurs in playback/recording mode, the error is detected by the model control and power control blocks of the microprocessor and information on the cause is stored as history in EEPROM.
By viewing this history in test mode, it helps you to analyze a fault and determine its location.

2-2. TEST MODE SETTING

There are two different methods to set the test mode:

① Short BP801 (TEST) on the main board with a solder bridge (connect pin ㉖ of IC801 to the ground). Then, turn on the power.

– main board (side B) –

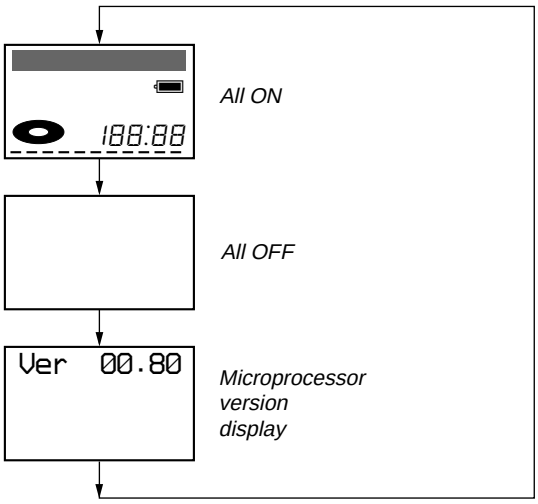


② In the normal mode, use the keys on the unit to perform the following operations:
Press and hold down [►] and press the keys below in this turn:
[▶▶|] → [▶▶|] → [|◀◀] → [|◀◀] → [▶▶|] → [|◀◀] → [▶▶|] → [|◀◀] → [❚❚] → [❚❚]

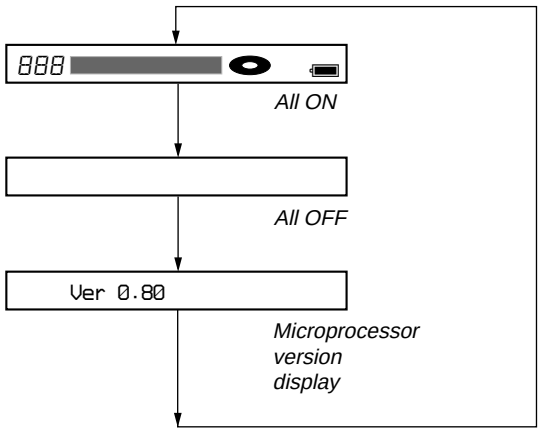
2-3. OPERATION IN TEST MODE SETTING

When the test mode is set, the LCD shows repeated cycles of the following display:

1) Unit LCD



2) Remote controller LCD



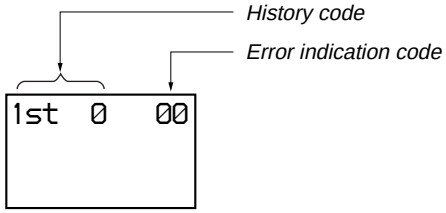
• Holding down [❚❚] allows the current display to be maintained while it being depressed.

2-4. RELEASING THE TEST MODE

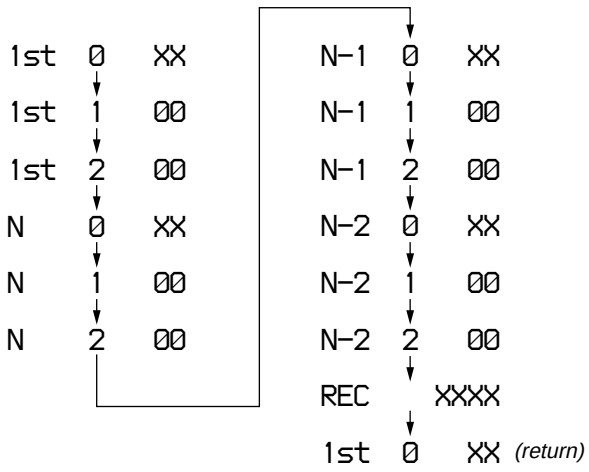
For test mode set with the method ①:
Turn off the power and open the solder bridge on BP801 on the main board.
For test mode set with the method ②:
Turn off the power.

2-5. SELF-DIAGNOSTIC MODE

1. Go into the test mode.
2. With the unit LCD indicators all flashing, press [DISPLAY] key to go into the self-diagnostic mode.



3. Then, each time [▶▶] key is pressed, the reference information display changes as given below.



• Press [|◀◀] key to go back to the previous display.

• Description of History Codes

History code number	Description
1st 0	The first error
1st 1	00 indicated
1st 2	
N 0	The last error
N 1	00 indicated
N 2	
N-1 0	One error before the last.
N-1 1	00 indicated
N-1 2	
N-2 0	Two errors before the last.
N-2 1	00 indicated
N-2 2	
REC	Total recording time *1)

*1) Total recording time
Total recording time is recorded in minutes as an index for load to the OP. It is recorded in hexadecimal format and up to 65,535 min. (about 886 discs of 74-minute disc) can be counted. It returns to "0000h" when recorder goes beyond this limit.
Example : REC 000A → Approx. 10 min.
REC 00A0 → Approx. 160 min.
REC 0A00 → Approx. 2560 min.

• Description of Error Indication Codes

Problem	Indication code	Meaning of code	Description
No error	00		
Abnormal stop during recording	01	Servo error	Abnormal disc RPM. Focus out of alignment. Attempt to access an abnormal address.
	02	ADIP read error	Unable to read the ADIP address.
	03	Shock detected during write	Jumped by 1.5 tracks or more due to shock during write.
	04	Shock detected during laser down	Shock detected when laser was moving down.
Abnormal stop during playback	11	No focus applied	Focus could not be applied.
	12	CRC error	Unable to read the address.
	15	FG error	Abnormal rotation of disc.
Abnormal stop of recording/playback caused by power system	21	Lower voltage due to overload	Power voltage reduced due to overload.
	22	Momentary interruption	Momentary interruption detected.
	23	Lower power voltage in motor system	Power voltage for motor continuously reduced to less than 1V.
	24	Low power voltage in DSP	

2-6. CLEARING THE ERROR INDICATION CODE AND TOTAL RECORDING TIME

After repair, reset the error indication code.
Reset the total recording time when you have replaced the OP.

1. Go into the self-diagnostic mode. (See page 5.)
2. To reset the error indication code, slide REC ➡ key when the code is displayed.
   (All data including 1st, N , N-1 and N-2 are reset.)
3. To reset the total recording time, slide REC ➡ key when the time is displayed.

SECTION 3
DISASSEMBLY

Note : This set can be disassemble according to the following sequence.

Bottom Panel assy ➡ Connector ➡ Main Board

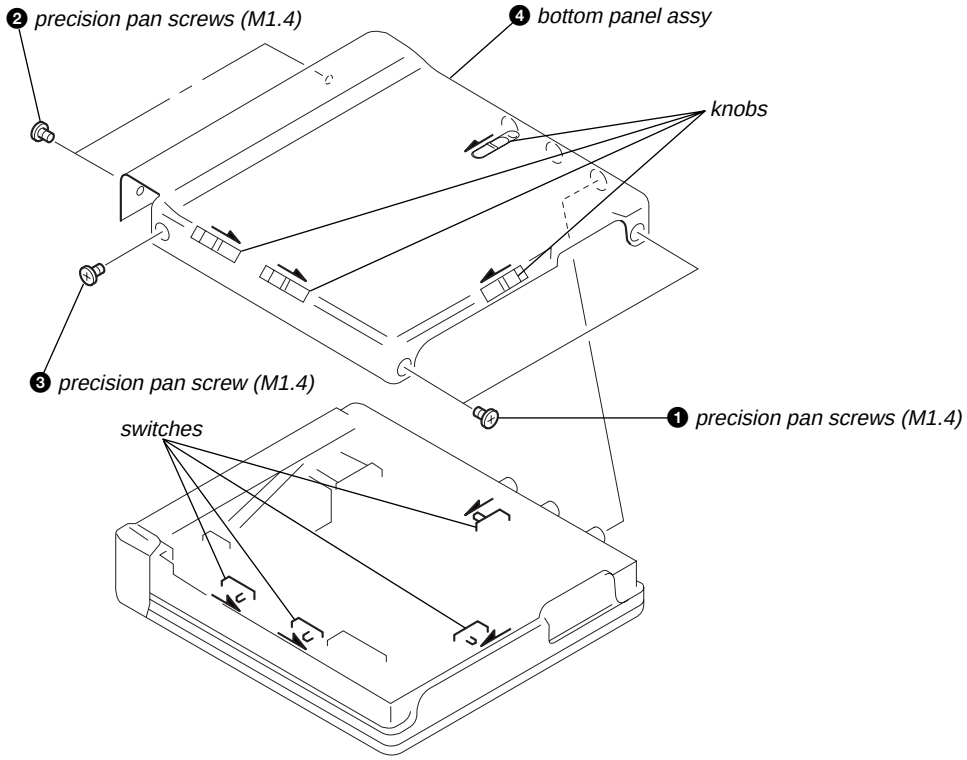
Upper Panel Block assy ➡ LCD Block assy

Ornametal Belt Block assy ➡ Main Board ➡ Chassis (Main) assy ➡ OP Block assy ➡ Holder assy

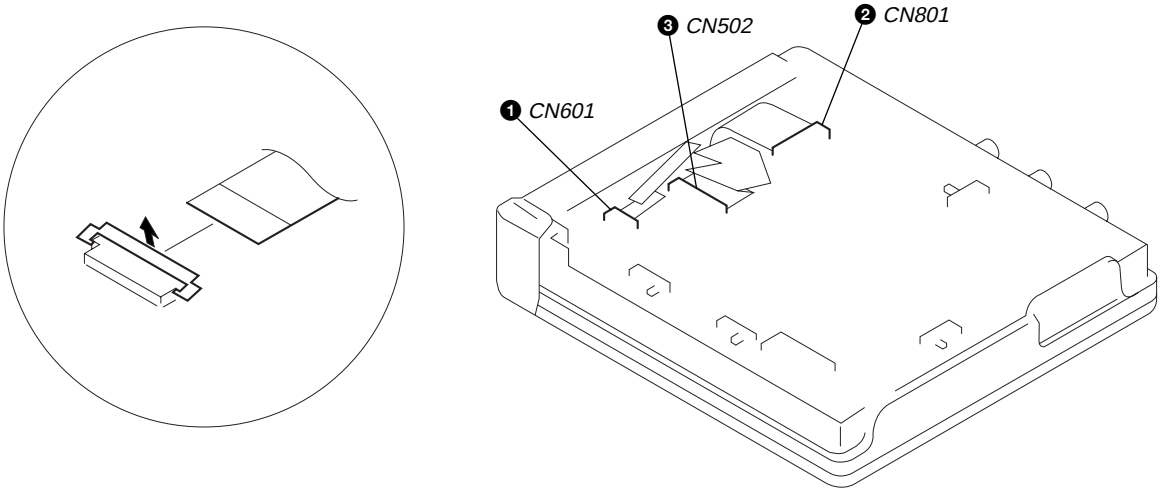
Note : Follow the disassembly procedure in the numerical order given.

3-1. BOTTOM PANEL ASSY

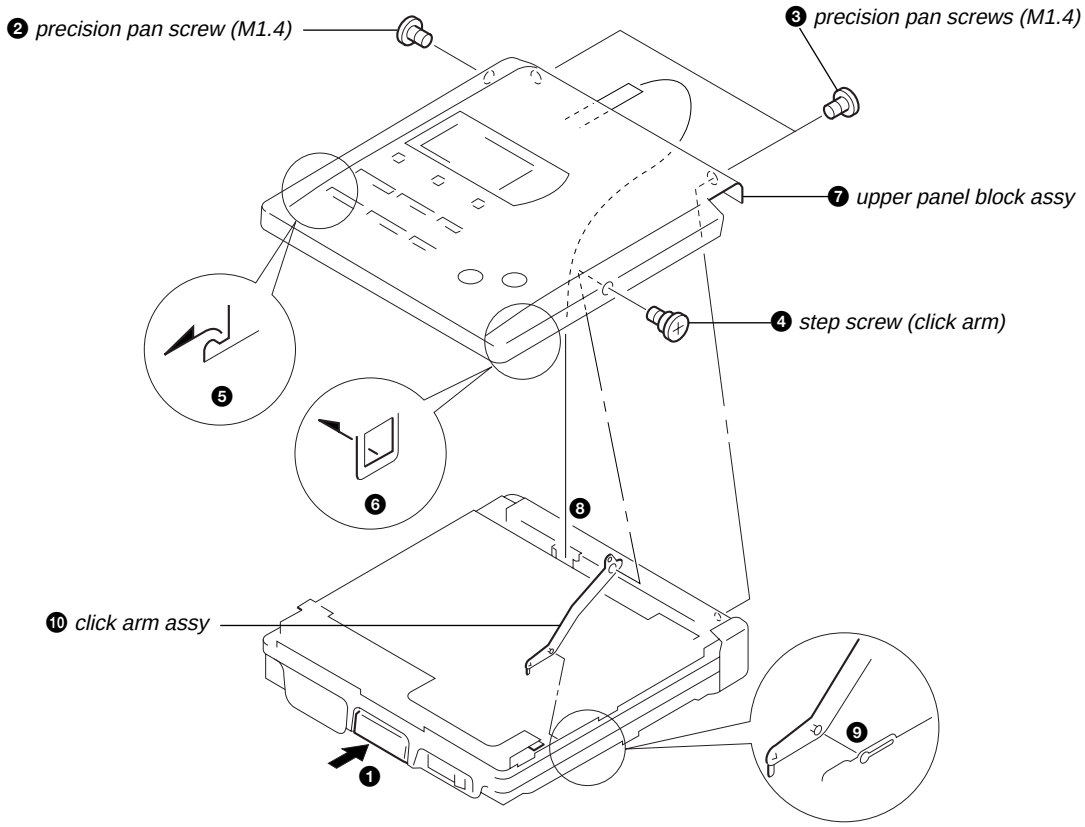
Note) *When installing, fit the each positions knobs with switches.*



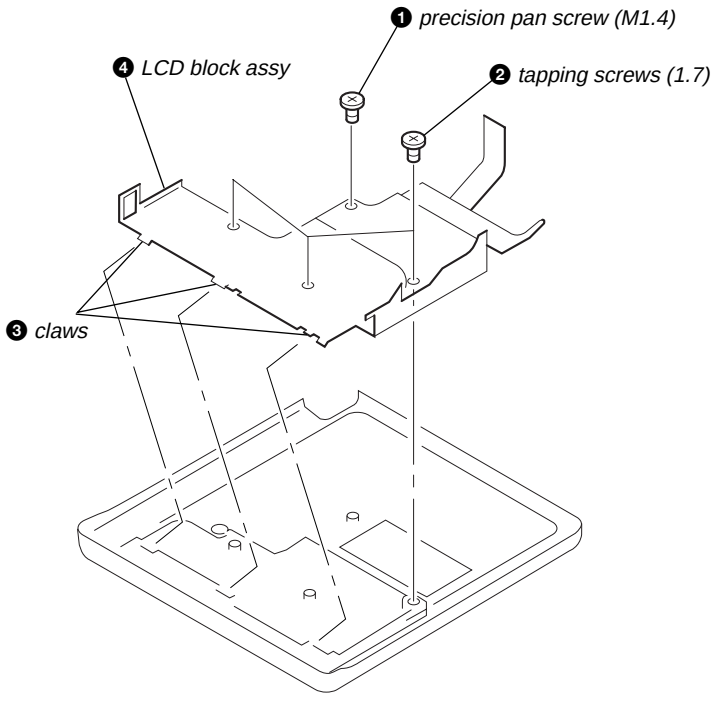
3-2. CONNECTOR



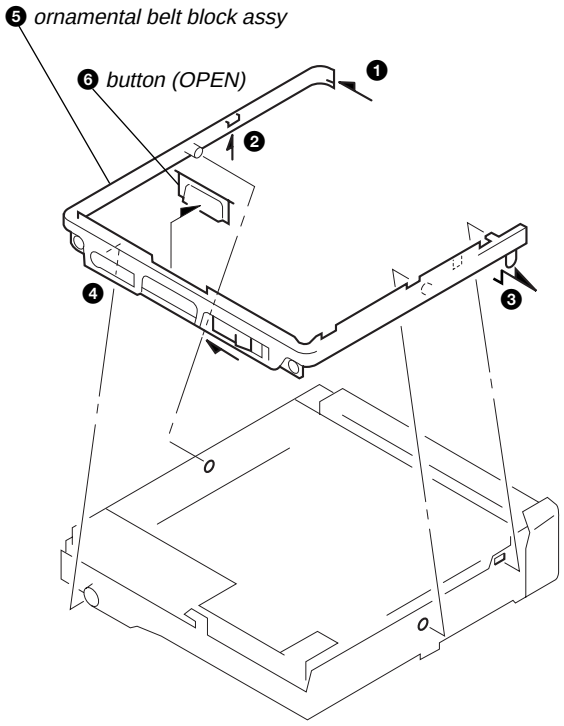
3-3. UPPER PANEL BLOCK ASSY



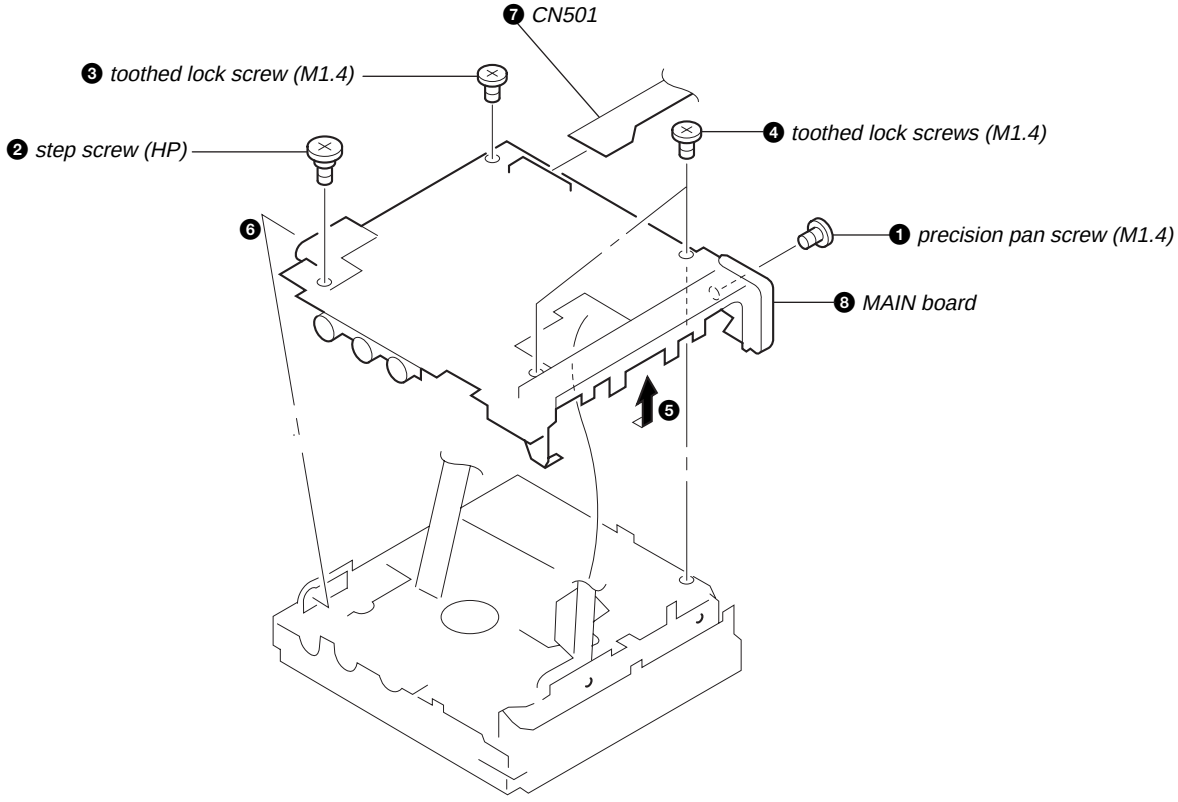
3-4. LCD BLOCK ASSY



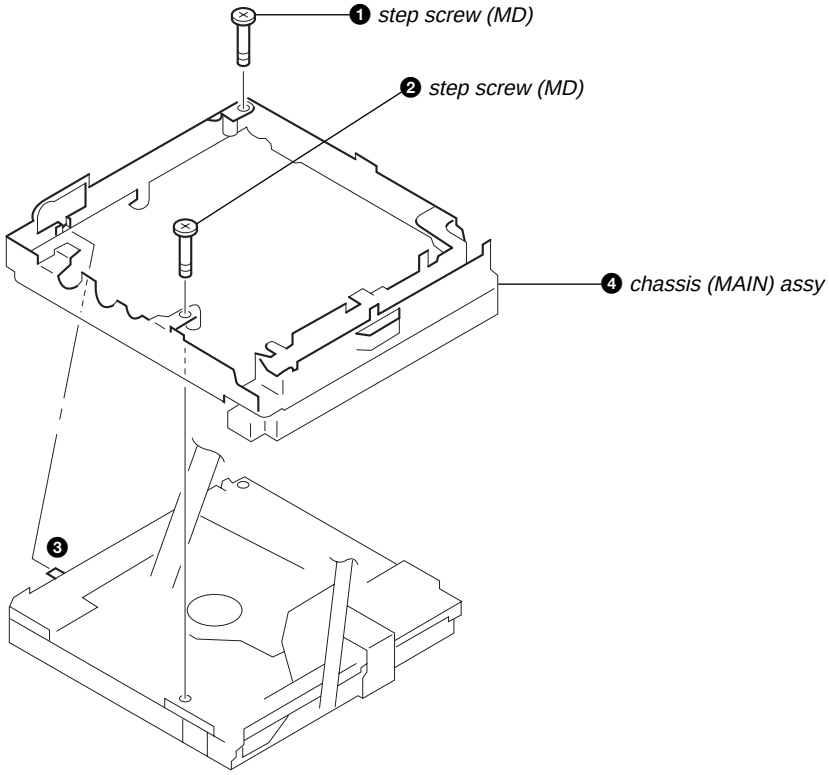
3-5. ORNAMENTAL BELT BLOCK ASSY



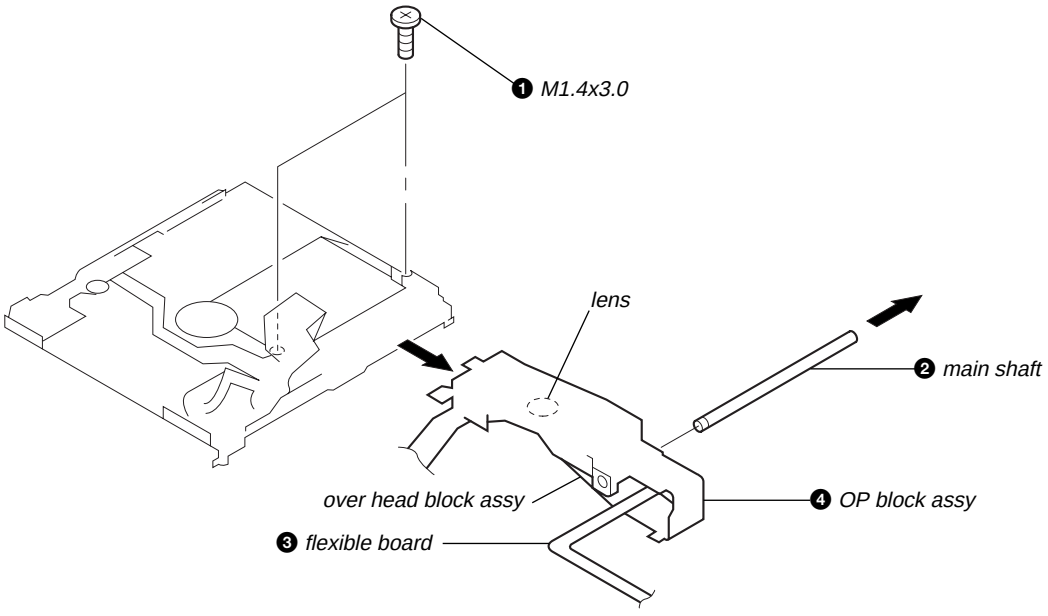
3-6. MAIN BOARD



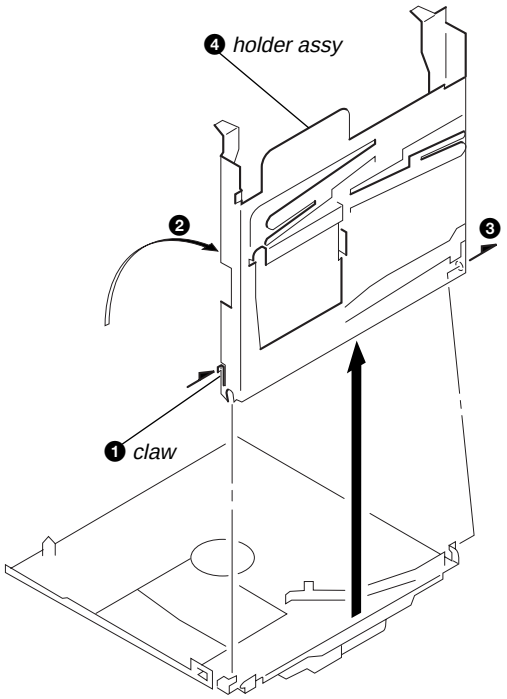
3-7. CHASSIS (MAIN) ASSY



3-8. OP BLOCK ASSY



3-9. HOLDER ASSY



SECTION 4
TEST MODE

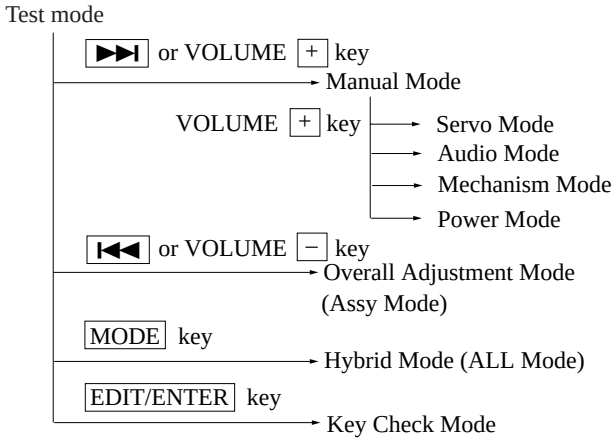
4-1. GENERAL

This set provides the Overall adjustment mode (Assy mode) that allows CD and MO disk to be automatically adjusted when in the test mode. In this Assy mode, the system discriminates between CD and MO disk and then automatically perform adjustments for them in sequence. If a fault is found, the system displays its location. Also, the Servo mode allows each individual adjustment to be automatically adjusted.

4-2. TEST MODE SETTING

See page 5.

4-3. TEST MODE STRUCTURE



4-4. MANUAL MODE

(1) Servo Mode

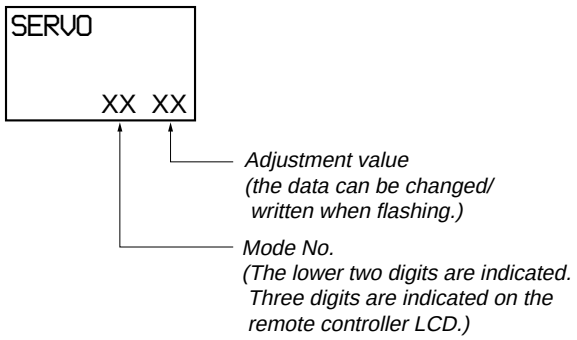
• How to Transfer in the Servo Mode:

Mode No.	Test Description	Check	Write
000	Servo mode		
010	Offset correction value indication		
011	VC offset correction		
012	Focus bias correction		
013	FE offset correction		
014	ABCD offset correction		
015	All servo ON		
016	Temperature indication		
020	Laser power adjustment		
021	Laser CD/MO read adjustment		○ (08)
022	Laser MO write adjustment		○ (4C)
023	Sled normal		○ (45)
024	Sled intermittent		○ (65)
025	Sled access		○ (30)
030	MO test adjustment		
031	MO focus search adjustment		
032	MO read FE balance adjustment		○ (0F)
033	MO read ABCD level		○ (07)
034	MO write FE balance adjustment		○ (10)
035	MO write ABCD level		○ (18)
036	Laser MO read adjustment		○ (08)
037	MO focus gain		○ (30)
038	MO tracking gain		○ (30)
039	MO focus bias	○	○ (06)
040	Low reflection CD test adjustment		
041	Low reflection CD focus search adjustment		
042	Low reflection CD FE balance adjustment		○ (10)
043	Low reflection CD ABCD level		○ (06)
044	Laser low reflection CD read		○ (08)
045	Low reflection CD focus gain		○ (30)
046	Low reflection CD tracking gain		○ (30)
047	Low reflection CD focus bias	○	○ (00)
050	CD test adjustment		
051	CD focus search adjustment		
052	CD FE balance adjustment		○ (10)
053	CD ABCD level adjustment		○ (15)
054	Laser CD read		○ (08)
055	CD focus gain		○ (30)
056	CD tracking gain		○ (30)
057	CD focus bias	○	○ (00)
060	Recording test		
061	32 cluster full recording		
062	Recording shock		
063	32 cluster full playback		

Check : Mode to display error rate and cluster.
Write : Mode to permit adjustment (Default value given in parentheses).

1. Go into the test mode.
2. Press ▶▶I or VOLUME + key to set the servo mode.

Unit LCD display



3. Press the keys below to change the mode No.

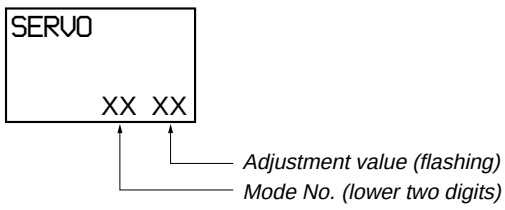
▶ : Increases the one place.
■ : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.

VOLUME + : Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.

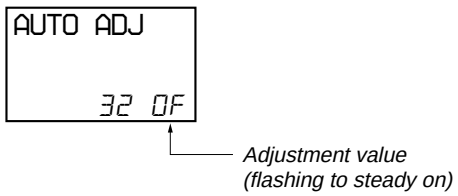
VOLUME − : Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Adjust in Servo Mode:

1. When the servo mode is set to the appropriate mode for each adjustment, the lower tow digits of the mode No. and the value stored in EEPROM are displayed and flashing.



2. To perform automatic adjustment for an adjustment item with the mode number 030 to 047, press ▮▮ key.
   If the result of adjustment is OK, the adjustment value changes from flashing to steady on and it is automatically written to EEPROM.

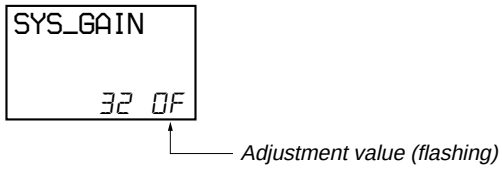


3. To perform manual adjustment, change the adjustment value with VOLUME + or − key, and press ▮▮ key to write it to EEPROM.

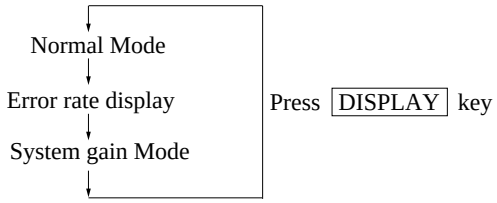
Note) Normally, automatic adjustment should be performed. Do not execute manual adjustment.

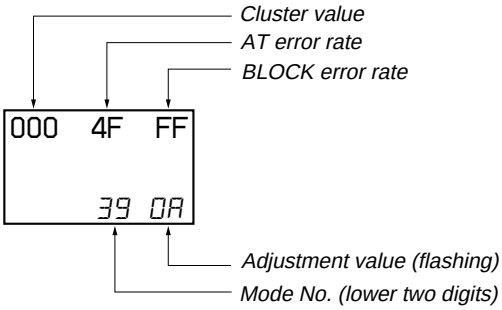
• System Gain Mode

1. This mode allows the system gain to be freely adjusted. Press DISPLAY key to enter this mode.



2. Increase or decrease the adjustment value with VOLUME + or − key.
3. Press DISPLAY or ■ key to return to the normal mode.
4. For the error rate display enabled:





Note) In normal service, do not adjust the system gain mode.

(2) Audio Mode

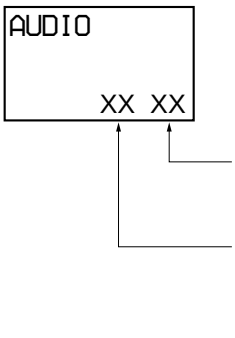
• How to Transfer in the Audio Mode

Mode No.	Test Description	Write	Change Description
100	Audio mode		
110	Audio playback		
111	L/R=1 kHz 0 dB	Playback VOL	HP output
112	L=1 kHz 0 dB	Playback VOL	HP output
113	R=1 kHz 0 dB	Playback VOL	HP output
114	L/R – ∞ dB	Playback VOL	HP output
120	Audio recording test		
121 *1)	LINE manual recording MIC manual recording	Recording VOL	HP output
122 *1)	DEMP LINE manual recording DEMP MIC manual recording	Recording VOL	HP output
123 *1)	LINE automatic recording OPT automatic recording MIC automatic recording	HP VOL	HP output
124 *1)	DEMP LINE automatic recording DEMP OPT automatic recording DEMP MIC automatic recording	HP VOL	HP output
130	DIGITAL AGC ADJ1		
131	MIC UP SR	○ (30)	
132	MIC DOWN SR	○ (FA)	
133	MIC THD0	○ (D0)	
134	MIC GAIN	○ (00)	
135	MIC ATTACK	○ (A0)	
136	MIC RECOVER	○ (F8)	
137	MIC THD2	○ (F0)	
138	MIC GAIN2	○ (D0)	
139	MIC RTIME	○ (01)	
140	DIGITAL AGC ADJ2		
141	LINE UP SR	○ (17)	
142	LINE DOWN SR	○ (FF)	
143	LINE THD0	○ (D0)	
144	LINE GAIN	○ (0C)	
145	LINE ATTACK	○ (33)	
146	LINE RECOVER	○ (F8)	
147	LINE THD2	○ (E4)	
148	LINE GAIN2	○ (5F)	
149	LINE RTIME	○ (04)	
150	DIGITAL AGC ADJ3		
151	MAN UP SR	○ (C0)	
152	MAN DOWN SR	○ (40)	
153	AUTO THD3	○ (51)	
154	AUTO LMT UP SR	○ (FF)	
155	AUTO LMT DOWN SR	○ (E0)	
156	MAN THD3	○ (51)	
157	MANU LMT UP SR	○ (FF)	
158	MANU LMT DOWN SR	○ (A0)	
159	THD1	○ (1A)	

*1) The port is detected and the input is automatically selected.
Contents changed : Contents to be changed when VOLUME + or − key is pressed.
Write : Mode to permit adjustment
(Default value given in parentheses)

1. Go into the test mode.
2. Press ▶▶| key or VOLUME + key and VOLUME + key in this turn to set the audio mode.

Unit LCD display



3. Press the keys below to change the mode number.
   ►► : Increases the one place.
   ■ : Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+] : Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.
VOLUME [–] : Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Adjust in the Audio Mode

1. When the audio mode is set to the appropriate mode for each adjustment, the lower tow digits of the mode No. and the value stored in EEPROM are displayed and flashing.
2. Change the adjustment value with VOLUME [+] or [–] key and press [❚❚] key to write the new value to EEPROM.

• How to Check in the Audio Mode

The audio mode allows the checks below to be performed:

1. For the mode numbers of 100 and 110 to 114, pressing [❚❚] key will activate a beep. (No beep sounds when [HOLD] switch is put on.)
2. For the mode numbers of 121 to 124, pressing [DIGITAL MEGA BASS] key will display the DBB mode for the adjustment value.
   1 : Mode 1
   2 : Mode 2
   13 : OFF
   (This will not be accepted when the LINE OUT jack is plugged. The display will be 13 : OFF when LINE OUT jack is plugged in Modes 1 and 2.)
3. For the mode numbers of 120 to 124, [REC] LED goes on. (The LED does not go on when [SYNCHRO REC] switch is put on.)

(3) Mechanism Mode

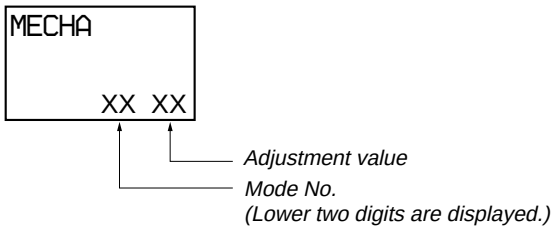
• How to Transfer the Mode in the Mechanism Mode:

Mode No.	Test Description	Operation
200	FUNCTION	Stepper control
210	MECHA test	Initial position return
211	HEAD adjustment	Operation variation changing (19)
212	REC position	Recording head descent
220	CLOCK	Clock
221	CLOCK check	Clock check/initialization

( ) : Default value

1. Go into the test mode.
2. Press [►►I] or VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the mechanism mode.

Unit LCD display



3. Press the keys below to change the mode No.
   ►► : Increases the one place.
   ■ : Sets the one place to 0.
   This key brings the ten place to 0 if the one place is 0.

VOLUME [+] : Increases the ten place by 10 if the one place is 0. Increases the adjustment value if the one place is non-zero.
VOLUME [–] : Decreases the ten place by 10 if the one place is 0. Decreases the adjustment value if the one place is non-zero.

• How to Check in the Mechanism Mode

The mechanism mode allows the checks below to be performed:

1. For the mode numbers of 200, 210 to 212, 220 and 221, pressing [I◄◄] key will move the optical pickup to the inner radius. Pressing [►►I] key will move the pickup to the outer radius.
2. For the mode numbers of 211 and 212, pressing [❚❚] key will start aging. Pressing [■] key will stop aging.
   • Mode No. 211 ... Sled aging with stepper at playback position.
   • Mode No. 212 ... Sled aging with stepper at recording position.
3. With the mode number 210 selected, pressing [❚❚] key will start aging with steeper at between home and recording positions. [■] key will stop aging.

• Clock Operation Check

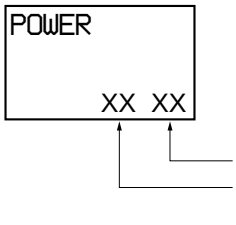
1. For the mode No. of 221, operation check is performed.
   It is determined as OK if at 11 years, 11 months, 11 days, 11 hours, 11 minutes and 11 seconds or not the default value.
2. For the mode No. of 221, pressing [II] key will clear the resume data stored in EEPROM and initialize the clock data.

Note) The clock should be set when the overall adjustment mode is completed as OK. The write data is to be at 11 years, November 11 days, 11 hours, 11 minutes and 11 seconds.

(4) Power Mode

Mode No.	Test Description	Indication value	Remark
300	POWER test		
310	POWER SUPPLY		
311	DC IN	+B voltage value	
312	DC IN + Ni-Cd	+B voltage value	
313	Ni or AM3	+B voltage value	
314	AM3	+B voltage value	
320	CHG TEST		
321	Charging start		

1. Go into the test mode.
2. Press [▶▶I] key or VOLUME [+] and VOLUME [+] and VOLUME [+] and VOLUME [+] in this turn to set the power mode.



Adjustment value
Mode No.
(Lower two digits are displayed.)

3. Press the keys below to change the mode No.

[►] : Increases the one place.
[■] : Sets the one place to 0.
This key brings the ten place to 0 if the one place is 0.
VOLUME [+] : Increases the ten place by 10 if the one place is 0.
Increases the adjustment value if the one place is non-zero.
VOLUME [–] : Decreases the ten place by 10 if the one place is 0.
Decreases the adjustment value if the one place is non-zero.

Note) With the mode number 310 selected, pressing [►] key will transfer to the mode number (311 to 314) for the currently operating power.
With the mode number 300 selected, pressing [II] key will set the sleep mode. Pressing [■] key will release it.

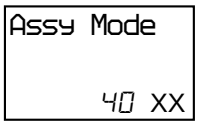
• How to Check in the Power Mode

1. For the mode numbers of 311 to 314, the voltage of the currently operating power is displayed.

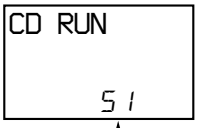
4-5. OVERALL ADJUSTMENT MODE (ASSY MODE)

• How to Adjust in Assy Mode

1. Go into the test mode.
2. Press [I◀◀] or VOLUME [–] key.



3. Insert the test CD (TDYS-1) or an available SONY CD.
4. Press [►] key. The system discriminates between CD and MO and performs automatic adjustment for CD.

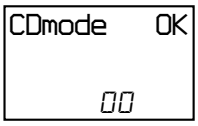


Mode No. under adjustment

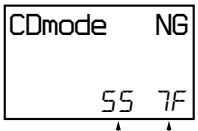
• CD Automatic Adjustment

Mode No.	Adjustment Description
052	CD FE balance adjustment
053	CD ABCD level adjustment
055	CD focus gain
056	CD tracking gain
057	CD focus bias

5. If the result of automatic adjustment is OK, the following display appears:

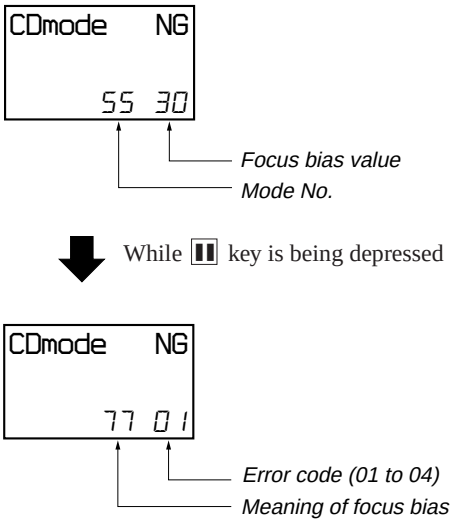


6. If the result of automatic adjustment is NG, the following display appears:

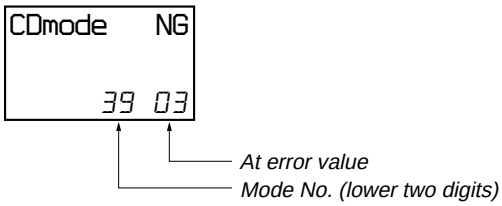


Result of adjustment
NG mode No. (lower two digits)

* For the mode numbers of 039 and 057, if the focus bias value is NG, the following display is repeated:

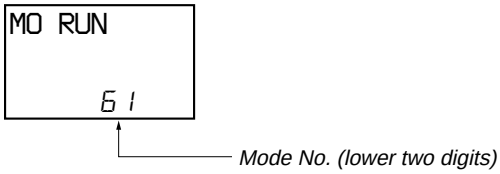


* For the mode numbers of 039 and 061, if the At error rate is NG, the following display is repeated:



7. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

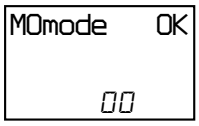
8. Insert a MO disk.
9. Press ► key. The system discriminates between CD and MO and performs automatic adjustment for the MO disk.



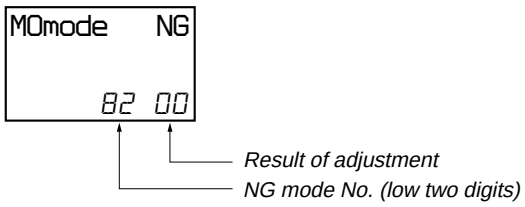
• MO Automatic Adjustment

Mode No.	Adjustment Description
032	MO read FE balance adjustment
033	MO read ABCD level
034	MO write FE balance adjustment
035	MO write ABCD level
037	MO focus gain
038	MO tracking gain
061	32 cluster full recording
062	Recording shock
063	32 cluster full playback
039	MO focus bias
042	Low refrection CD FE balance adjustment
043	Low refrection CD ABCD level
044	Laser low reflection CD read
046	Low refrection CD tracking gain

10. If the result of automatic adjustment is OK, the following display appears:



11. If the result of automatic adjustment is NG, the following display appears:



12. If NG, set the servo mode. Perform automatic adjustment for the items not accepted (see the servo mode).

4-6. HYBRID MODE, KEY CHECK MODE

These modes are not used in normal service.

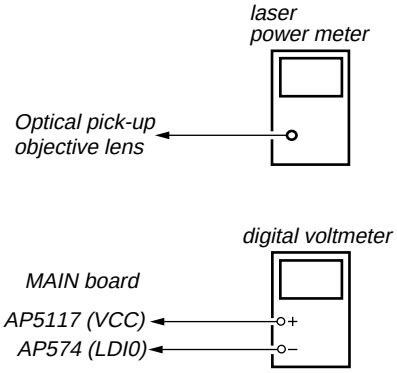
SECTION 5
ELECTRICAL ADJUSTMENTS

PRECAUTIONS FOR ADJUSTMENT

1) Perform all adjustments in the order given in the test mode. After adjusting, exit the test mode.
2) Use the following tools and measuring instruments.
   - Test CD TDYS-1 (Part No. : 4-963-646-01)
   - Recorded MO disk PTDM-1 (Part No. : J-2501-054-A)
   - Laser power meter LPM-8001 (Part No. : J-2501-046-A)
   - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
   - Digital voltmeter
3) Unless specified othewise, supply DC 3V from the DC IN 3V jack.
4) Swtich, knob positions
   HOLD switch ..... OFF
   AVLS switch ..... NORM

LASER POWER CHECK

Connection :



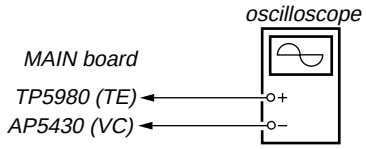
Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the ► key, and set the laser power adjustment mode (Mode : 020) using the VOLUME + or – key.
3. Press the ⏮ key and move the optical pick-up to the inner most circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
5. Press the ► key, and set the laser CD/MO read adjustment mode (Mode : 021).
6. Check that the laser power meter reading is 0.85 ± 0.085 mW.
7. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 44 mV.
8. Press the ► key, and set the laser MO write adjustment mode (Mode : 022).
9. Check that the laser power meter reading is 6.8 ± 0.68 mW.
10. Press the ❚❚ key to finalize the adjustment data.
11. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) at this time is below 80 mV.
12. Press the ■ key.
13. Exit the test mode.

Adjustment Location : See page 19.

MO TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the ► key, and set the MO test adjustment mode (Mode : 030) using the VOLUME + or – key.
3. Press the ⏮ or ⏭ key and move the optical pick-up to the center circumference.
4. Insert any MO disk available on the market.
5. When the ► key is pressed, the MO read FE balance adjustment mode (Mode : 032) will be set after MO focus search adjustment mode (Mode : 031).
6. Press the ❚❚ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.
7. Slide the REC key and set the MO write FE balance adjust ment mode (Mode : 034).
8. Press the ❚❚ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

Specification : A = B, C ≧1.0 Vp-p

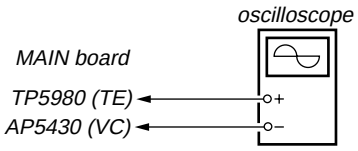
9. Check that the traverse level at this time is above 1.0 Vp-p.
10. Press the ■ key.
11. Exit the test mode.

Note) Using a recorded disk in this adjustment will erase the data.

Adjustment Location : See page 19.

LOW REFLECTION CD TRAVERSE ADJUSTMENT

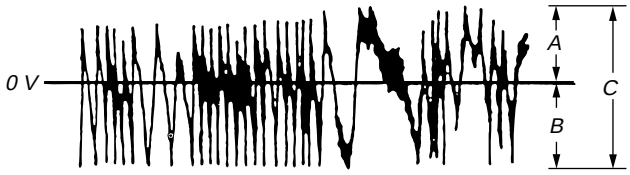
Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the ► key, and set the low reflection CD test adjustment mode (Mode : 040) using the VOLUME + or – key.
3. Insert any MO disk available on the market.
4. When the ► key is pressed, the low reflection CD FE balance adjustment mode (Mode : 042) will be set after low reflection CD focus search adjustment mode (Mode : 041).
5. Press the ❚❚ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)



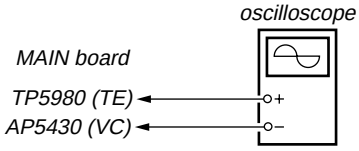
Specification : A = B, C ≧0.9 Vp-p

6. Check that the traverse level at this time is above 0.9 Vp-p.
7. Press the ■ key.
8. Exit the test mode.

Adjustment Location : See page 19.

CD TRAVERSE ADJUSTMENT

Connection :



Adjustment Method :

1. Set the servo mode of the test mode (Mode : 000).
2. Press the ► key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the |◄◄ or ►►| key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the ► key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. Press the ❚❚ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse waveform)

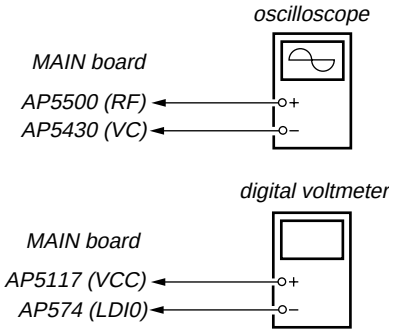
Specification : A = B, C ≧1.0 Vp-p

7. Check that the traverse level at this time is above 1.0 Vp-p.
8. Press the ■ key.
9. Exit the test mode.

Adjustment Location : See page 19.

CD RF LEVEL CHECK

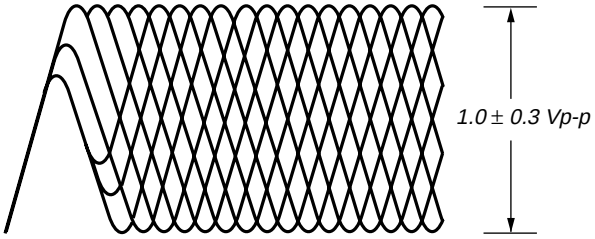
Connection :



Adjustment Method :

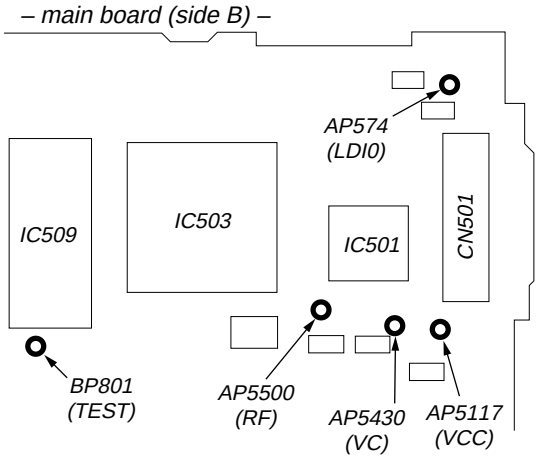
1. Set the servo mode of the test mode (Mode : 000).
2. Press the ► key, and set the CD test adjustment mode (Mode : 050) using the VOLUME + or – key.
3. Press the ⏮ or ⏭ key and move the optical pick-up to the center circumference.
4. Insert a test CD (TDYS-1).
5. When the ► key is pressed, the CD FE balance adjustment mode (Mode : 052) will be set after CD focus search adjustment mode (Mode : 051).
6. When the ► key is pressed, the CD ABCD level adjustment mode (Mode : 053) is set.
7. Press the ⏸ key to perform automatic adjustment, and check that the RF level is 1.1 ± 0.3 Vp-p.

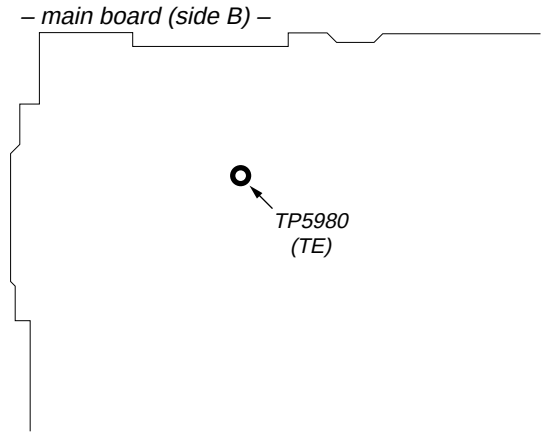
(RF waveform)



8. Check that the voltage between AP5117 (VCC) and AP574 (LDI0) and at this time is below 40 mV.
9. Press the ■ key.
10. Exit the test mode.

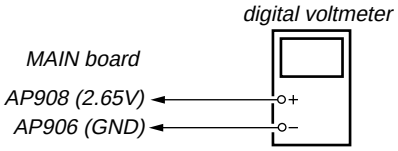
Adjustment Location :





2.65V ADJUSTMENT

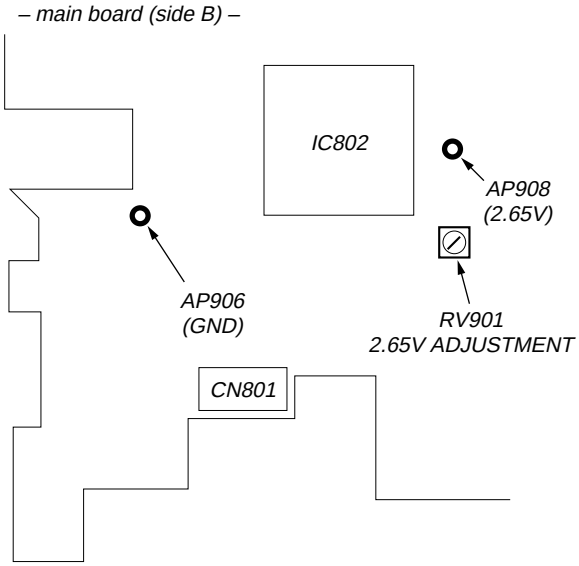
Connection :



Adjustment Method :

1. Playback the test CD (TDYS-1).
2. Adjust RV901 so that the voltage between AP908 (2.65V) and AP906 (GND) is at 2.65 ± 0.03 Vdc.

Adjustment Location :



SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTIONS

• IC503 CXD2652AR (DIGITAL SERVO, ATRAC)

Pin No.	Pin name	I/O	Pin Description
1	MNT 0	O	Traverse count signal output.
2	MNT 1	O	Track jump detect output.
3	MNT 2	—	Not used (Open).
4	MNT 3	—	Focus OK signal output.
5	SWDT	I	Inputs write data signal from system controller (IC802).
6	SCLK	I	Inputs serial clock signal from system controller (IC802).
7	XLAT	I	Inputs serial latch signal from system controller (IC802).
8	SRDT	O	Outputs write data signal to system controller (IC802).
9	SENS	O	Outputs internal status (SENS) to system controller (IC802).
10	XRST	I	Inputs reset signal from system controller (IC802). L : Reset
11	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
12	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC802). Outputs “L” every 13.3 msec. Outputs “H” at all most mostly.
13	WRPWR	I	Inputs laser power switching signal from system controller (IC801).
14	NC	—	Not used (Open).
15	TX	I	Input of write data taransmission timing from system controller (IC801). Also used as magnetic field head ON/OFF output.
16	OSC1	O	Clock output (22.5 MHz).
17	OSC0	I	Clock input (22.5 MHz).
18	XTSL	—	Not used (Fixed at “L”)
19	NC	—	Not used (Connect to ground).
20	RVSS	—	Connect to ground.
21	DIN	I	Digital audio signal input pin (For optical input).
22	NC	—	Not used (Open).
23	ADDT	I	Audio data input from A/D converter (IC301).
24	DATA	O	Monitor/decode audio data output to A/D converter (IC301).
25	ALRCK	O	L/R clock output to D/A converter (IC301).
26	ABCK	O	Bit clock signal output to A/D, D/A converter (IC301).
27	FS256	O	11.2896 MHz clock output (MCLK).
28	DV_{DD}	—	Power supply (+2.8 V) for digital.
29 – 39	A00 – A08, A10, A11	O	Address signal output to DRAM (IC509).
40	DVSS	—	Ground terminal.
41	XOE	O	Output enable contol signal output to DRAM (IC509).
42	XCAS	O	Column address strobe singal output to DRAM (IC509).
43	A09	O	Address signal output to DRAM (IC509).
44	XRAS	O	Row address strobe signal output to DRAM (IC509).
45	XWE	O	Read/write control signal output to DRAM (IC509).
46 – 49	D0 – D3	I	Data signal input from DRAM (IC509).
50	MVCI	—	Not used (Connect to ground).
51	ASYO	O	Playback EFM full-swing output (L : VSS, H : VDD).
52	ASYI	I	Playback EFM asymmetry comparate voltage input.
53	AVDD	—	Power supply (+2.8 V) for analog.
54	BIAS	I	Playback EFM asymmetry circuit constant current input.
55	RFI	I	Inputs playback EFM RF signal from RF amplifier (IC501).

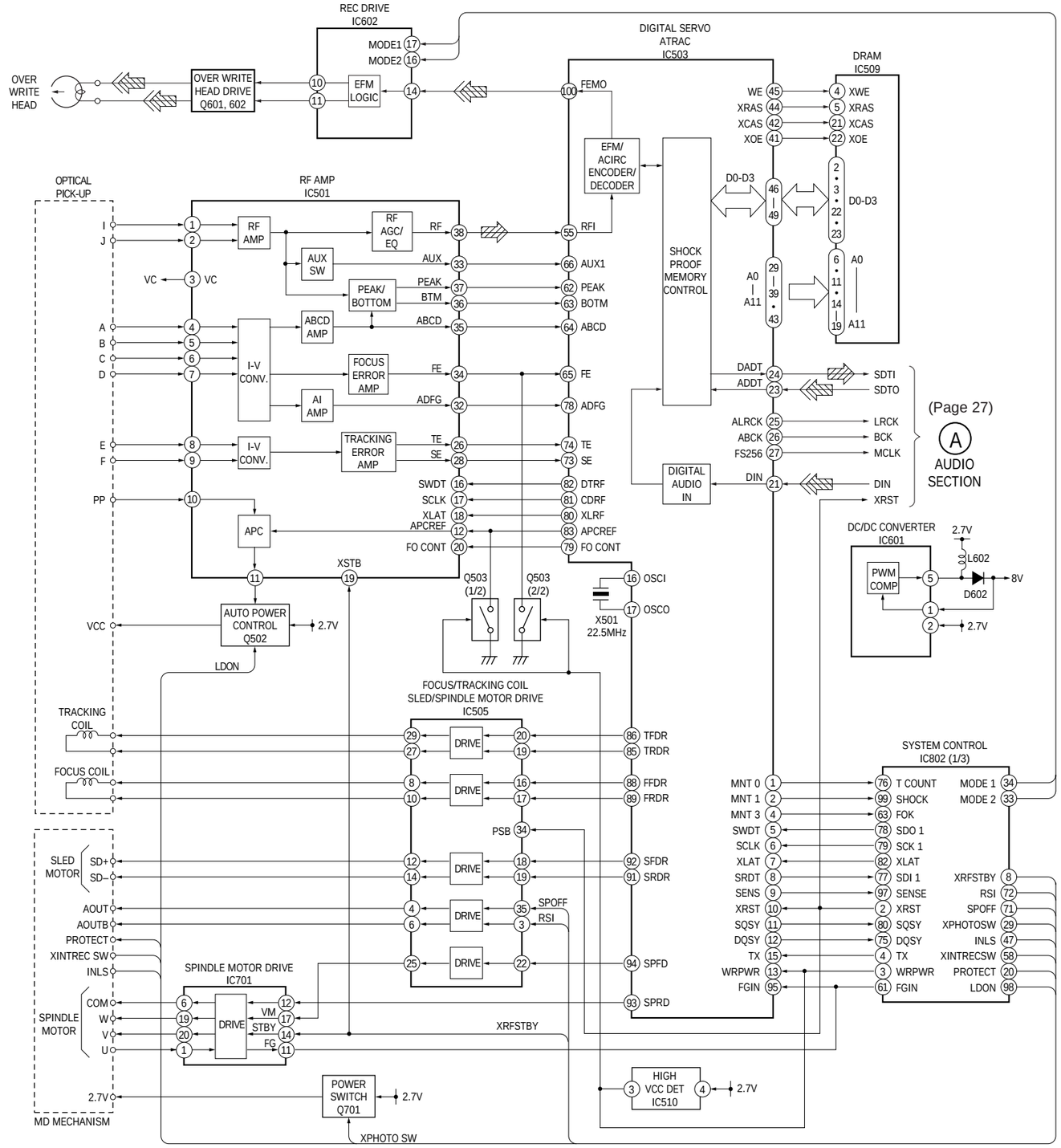
Pin No.	Pin name	I/O	Pin Description
56	AVSS	—	Ground terminal.
57	PDO	—	Not used (Open).
58	PCO	O	Decoder PLL master clock PLL phase comparison output.
59	FILI	I	Decoder PLL master clock PLL filter input.
60	FILO	O	Decoder PLL master clock PLL filter output.
61	CLTV	I	Decoder PLL master clock PLL VCO control voltage input.
62	PEAK	I	Inputs peak hold signal for light amount signal from RF amplifier (IC501).
63	BOTM	I	Inputs bottom hold signal for light amount signal from RF amplifier (IC501).
64	ABCD	I	Light amount signal from RF amplifier (IC501).
65	FE	I	Input focus error signal from RF amplifier (IC501).
66	AUX1	I	Input of auxiliary signal from RF amplifier (IC501).
67	VC	I	Input of middle point voltage (+1.4 V) from RF amplifier (IC501).
68	ADIO	—	Not used (Open).
69	AVDD	—	Power supply (+2.8 V) for analog.
70	ADRT	—	Not used (Connect to +2.8 V).
71	ADRB	—	Not used (Connect to ground).
72	AVSS	—	Ground terminal.
73	SE	I	Input of sled error signal from RF amplifier (IC501).
74	TE	I	Input of tracking error signal from RF amplifier (IC501).
75	AUX2	—	Not used (Connect to +2.8 V).
76	DCHG	—	Not used (Connect to +2.8 V).
77	APC	—	Not used (Connect to +2.8 V).
78	ADFG	I	Input of ADIP dual FM signal from RF amplifier (IC501) (22.05 kHz ± 1 kHz). (TTL Schmit input)
79	FO CONT	O	Focus control output to RF amplifier (IC501).
80	XLRF	I	Latch signal input from RF amplifier (IC501).
81	CKRF	O	RFCK clock (7.35 kHz) signal output.
82	DTRF	I	Serial data input from system controller (IC802).
83	APCREF	I	Laser power setting signal input.
84	LDDR	—	Not used (Open).
85	TRDR	O	Tracking servo drive signal output (–).
86	TFDR	O	Tracking servo drive signal output (+).
87	DVDD	—	Power supply (+2.8 V) for digital.
88	FFDR	O	Focus servo drive signal output (+).
89	FRDR	O	Focus servo drive signal output (–).
90	FS4	O	Not used (Open). (176.4 kHz clock signal output (MCLK).)
91	SRDR	O	Sled servo drive signal output (–).
92	SFDR	O	Sled servo drive signal output (+).
93	SPRD	O	Spindle servo drive signal output (–).
94	SPFD	O	Spindle servo drive signal output (+).
95	FGIN	I	FG signal input from spindle motor driver (IC701).
96	TEST1	—	Not used (Connect to ground).
97	TEST2	—	Not used (Connect to ground).
98	TEST3	—	Not used (Connect to ground).
99	DVSS	—	Ground terminal.
100	EFMO	O	EFM recording signal output.

• IC802 CXP740010 (SYSTEM CONTROL)

Pin No.	Pin name	I/O	Pin Description
1	CLKCS	O	Chip select output to real time clock (IC805).
2	XRST	O	Reset output. L : Reset
3	WRPWR	O	Laser power switching signal output.
4	TX	O	Write data transfer timing output.
5	SDI2	I	Serial data input.
6	SDO2	O	Serial data output.
7	SCK2	O	Serial clock output.
8	XRF-STBY	O	Power control output to RF amplifier (IC501).
9	SSB	I/O	SSB data signal input and output.
10	SSB SCK	I/O	SSB clock signal input and output. (Not used (Open).)
11	DTCK	I/O	Remote control data signal input/output.
12	SPCK	—	Not used (Open).
13	WP	I	Wake-up signal input from remote control key and this unit key.
14	OPEN	I	Detecting switch for opening and closing of the upper cover. L : Close
15	CLOCK	I	CLOCK SET switch input.
16	NC	—	Not used (Open).
17	NC	—	Not used (Open).
18	T.MARK	I	T MARK (Track mark) switch input.
19	REC	I	REC switch input.
20	PROTECT	I	Disc write protect switch. H : Protect
21	HOLD	I	HOLD switch input (This unit). L : HOLD
22	SYNC REC	I	SYNCHRO REC switch input.
23	D. B. B	I	DIGITAL MEGA BASS slide switch input.
24	XLINEDET	I	LINE IN (OPTICAL) detection input. L : LINE IN
25	AVLS	I	AVLS switch input. L : LIMIT
26	XTEST	I	Test mode terminal. L : Test mode
27	XDCIN	I	Not used (Open). (DC input detect. L : DC IN)
28	KANA SE L	I	Model input. (L : J model, H : Tourist, Hong Kong model)
29	XPHOTO SW	O	ON/OFF control signal output of PHOTO circuit.
30	XP CONT	O	Power control output. L : ON
31	X2VCONT	O	Outputs H while operating with a lithium battery. 2V power control signal output. L : ON
32	XREC LED	O	REC LED control. L : ON
33	MODE2	O	REC drive (IC602) control signal output.
34	MODE1	O	
35	XNIMH CHG	O	Battery charger control signal output. L : Charge
36	XLCD ON	O	LCD ON/OFF control. L : ON
37	——	—	Not used (Open).
38	MRST	I	Microprocessor reset input.
39	V_{SS}	—	Ground.
40	XTAL	—	System clock (12 MHz).
41	EXTAL	—	System clock (12 MHz).
42	LCD STBY	O	LCD communication strobe signal output to LCD driver.
43	NC	—	Not used.
44	LCD DATA	O	LCD data output.
45	LCD SCK	O	Serial clock output.
46	CHG MNT	I	Battery charge voltage minitor input.
47	INLS	I	Detecting switch for internal circuit of sleding. L : Internal circuit
48	HIDC MNT	I	Voltage monitor DC input.
49	KEYR	I	Remote control key input.
50	AV_{SS}	—	Ground terminal for A/D converter.

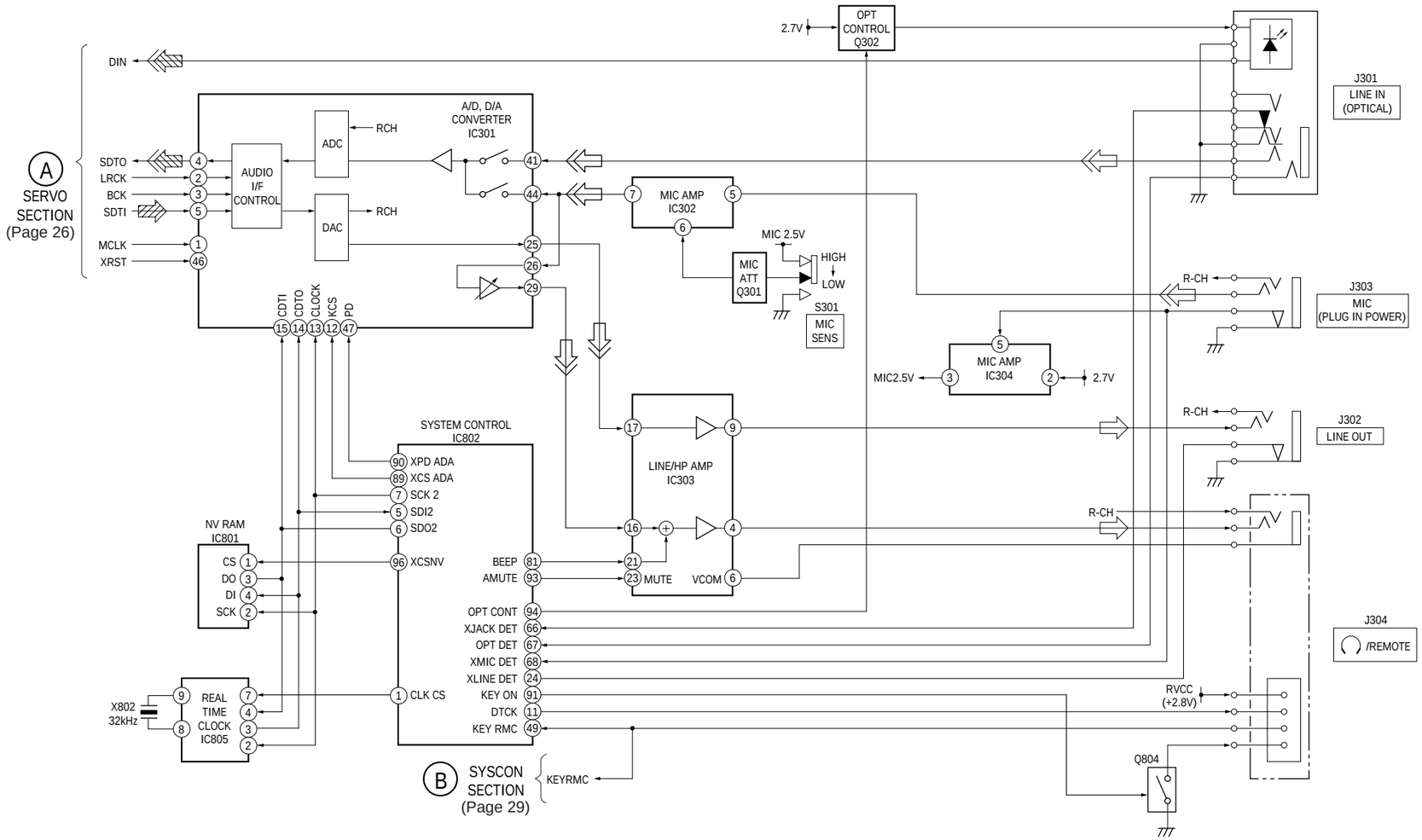
Pin No.	Pin name	I/O	Pin Description
51	AVREF	I	A/D converter reference voltage input.
52	AV_{DD}	—	A/D converter power supply terminal.
53	NC	—	Not used (Open).
54	TEMP	I	Temp meter (IC803) input.
55	KEY3	I	Key input.
56	KEY4	I	Key input.
57	KEY1	I	Key input.
58	XINT REC SW	I	Recording head position detect input.
59	UNREG MNT	I	2.8 V voltage monitor input.
60	2V MNT	I	Voltage monitor for lithium battery. Motor power voltage monitor input.
61	FG IN	I	FG input from motor driver (IC503).
62	NC	—	Not used (Open).
63	FOK	I	Focus OK signal input.
64	——	—	Not used (Open).
65	——	—	Not used (Open).
66	XJACKDET	I	LINE IN (OPTICAL) jack detection input.
67	OPT DET	I	LINE IN (OPTICAL) optical detection input.
68	XMIC DET	I	MIC (PLUG IN) jack detection.
69	——	—	Not used (Open).
70	——	—	Not used (Open).
71	SPOFF	O	REC head motor control signal output.
72	RSI	O	
73	CHG CONT	O	Constant current chage control signal output.
74	——	—	Not used (Open).
75	DQSY	I	Subcode Q sync (SCOR) of digital in U-bit CD format from IC503.
76	T COUNT	I	Traverse count signal input.
77	SDI1	I	Serial data input.
78	SDO1	O	Serial data output.
79	SCK1	O	Serial clock output.
80	SQSY	I	SUB-Q/ADIP SYNC input.
81	BEEP	O	BEEP sound output control.
82	XLAT	O	Latch output.
83	NC	—	Not used (Open).
84	TEX	—	Not used (Fixed at “L”).
85	XT	—	Not used (Fixed at “L”).
86	V_{SS}	—	Ground.
87	V_{DD}	—	Power supply pin (+2.8V).
88	NC	—	Not used (Fixed at “H”).
89	XCS ADA	O	A/D, D/A converter chip select output.
90	XPD ADA	O	A/D, D/A converter power down signal output. H : Power down
91	KEYON	O	SLEEP : L, action : H.
92	XNIMH DET	I	Battery detect switch input.
93	A MUTE	O	Analog mute control. H : Mute
94	OPT CTL	O	Power supply control output for an optical input.
95	XCE REG	—	Not used (Open).
96	XCE NV	O	EEPROM chip select output.
97	SENS	I	SENS input.
98	LDON	O	“H” : APC circuit ON, “L” : APC circuit OFF
99	SHOCK	I	Track jump detection input from IC503.
100	GND SW	O	Ground switch output.

6-2. BLOCK DIAGRAM — SERVO SECTION —



- Signal path
  : PLAY(DIGITAL)
  : REC(DIGITAL)
- R-ch : same as L-ch.

6-3. BLOCK DIAGRAM — AUDIO SECTION —



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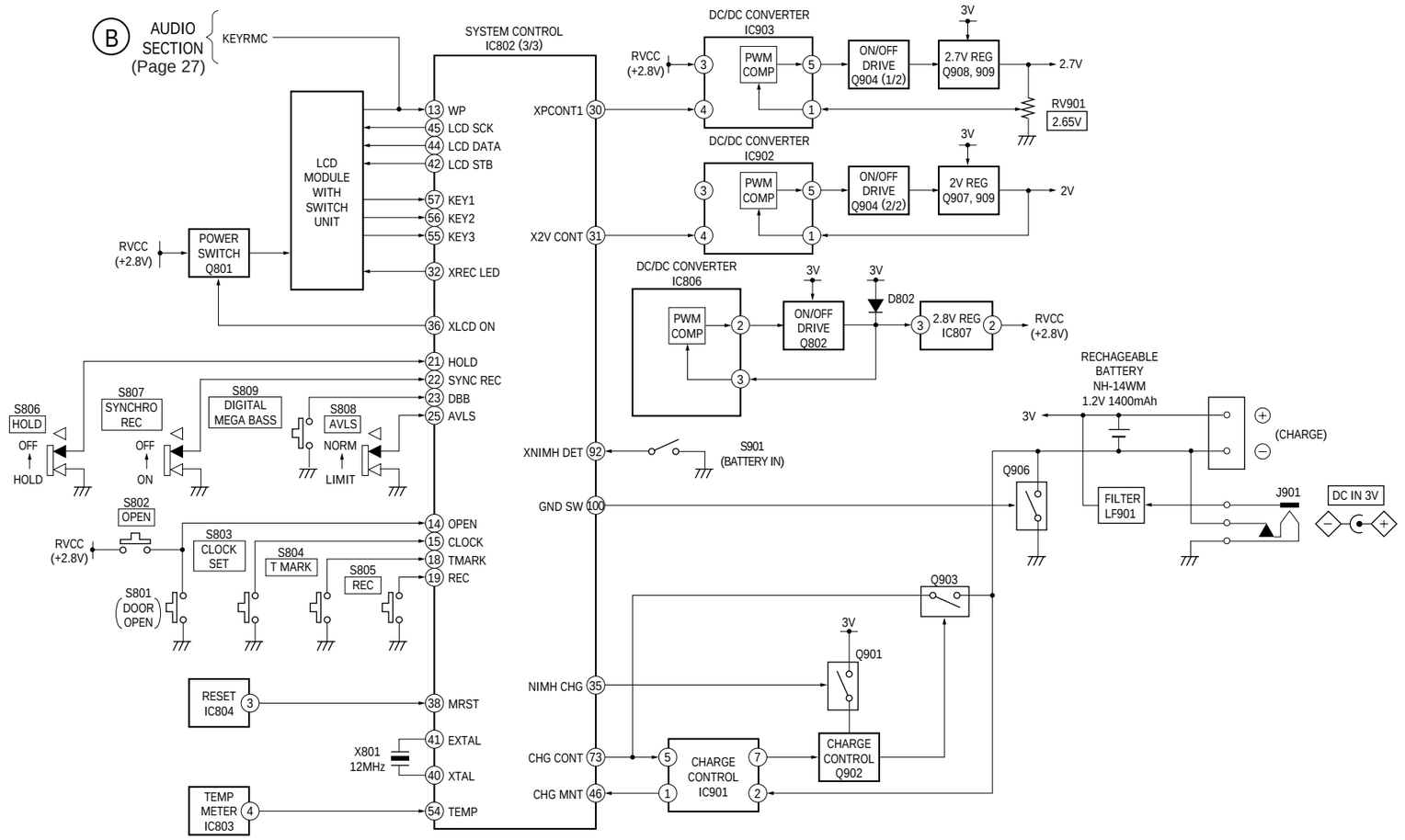
- Signal path
  - : PLAY(DIGITAL)
  - : REC(DIGITAL)
  - : PLAY(ANALOG)
  - : REC(ANALOG)

- R-ch : same as L-ch.

6-4. BLOCK DIAGRAM — SYSTEM CONTROL SECTION —



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6-8. SCHEMATIC DIAGRAM — MAIN SECTION (1/3) — • Refer to page 49 for IC Block Diagrams.

• Waveforms

① VOLT/DIV : 0.5V AC
TIME/DIV : 1µsec
1.0±0.3Vp-p
IC501 (38)

② VOLT/DIV : 0.1V AC
TIME/DIV : 0.1msec
Approx. 0.5Vp-p
IC501 (29)

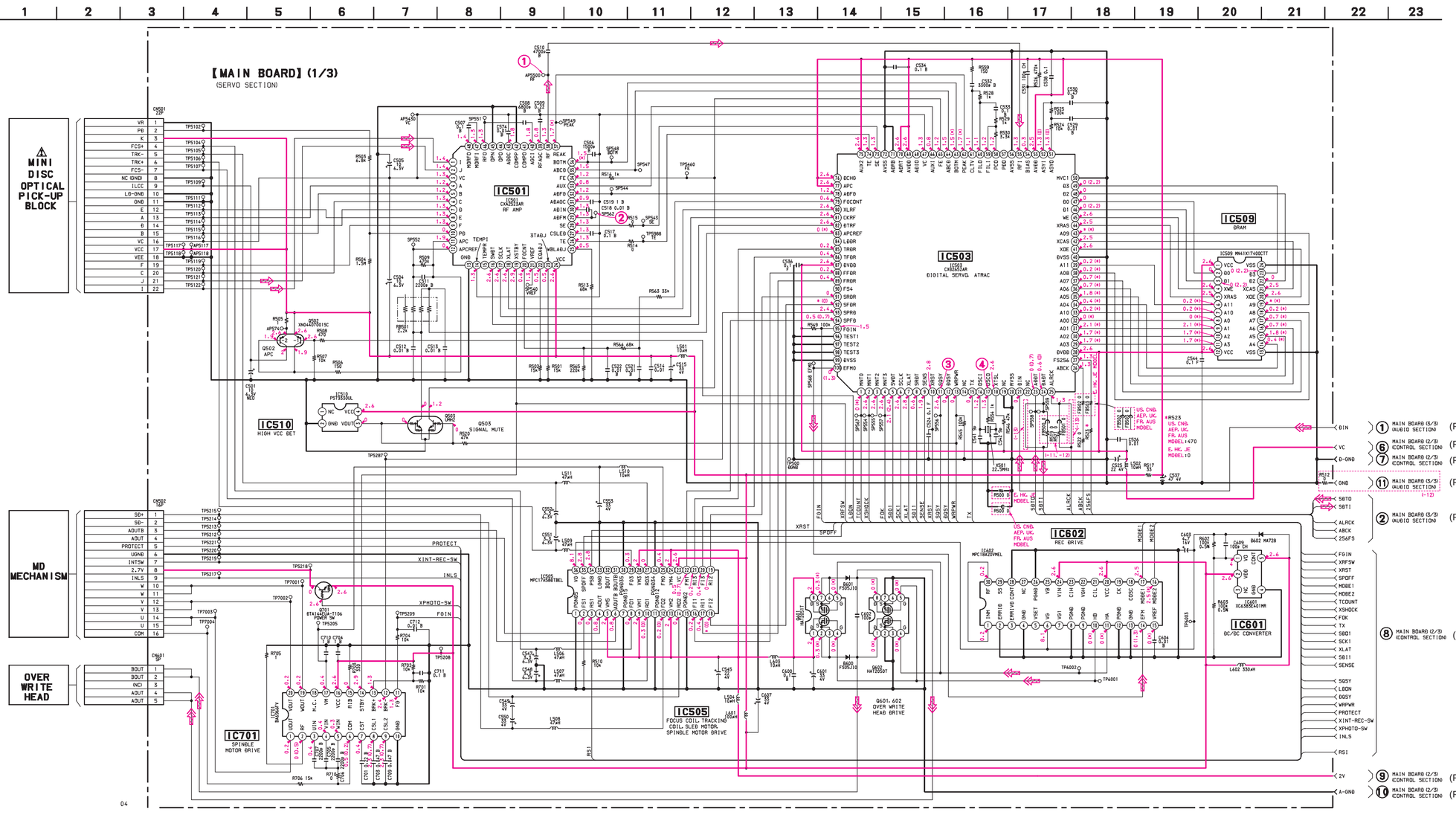
③ VOLT/DIV : 1V AC
TIME/DIV : 5msec
2.4Vp-p
13.4msec
IC503 (11)

④ VOLT/DIV : 1V AC
TIME/DIV : 20nsec
2.4Vp-p
22.5MHz
IC503 (17)

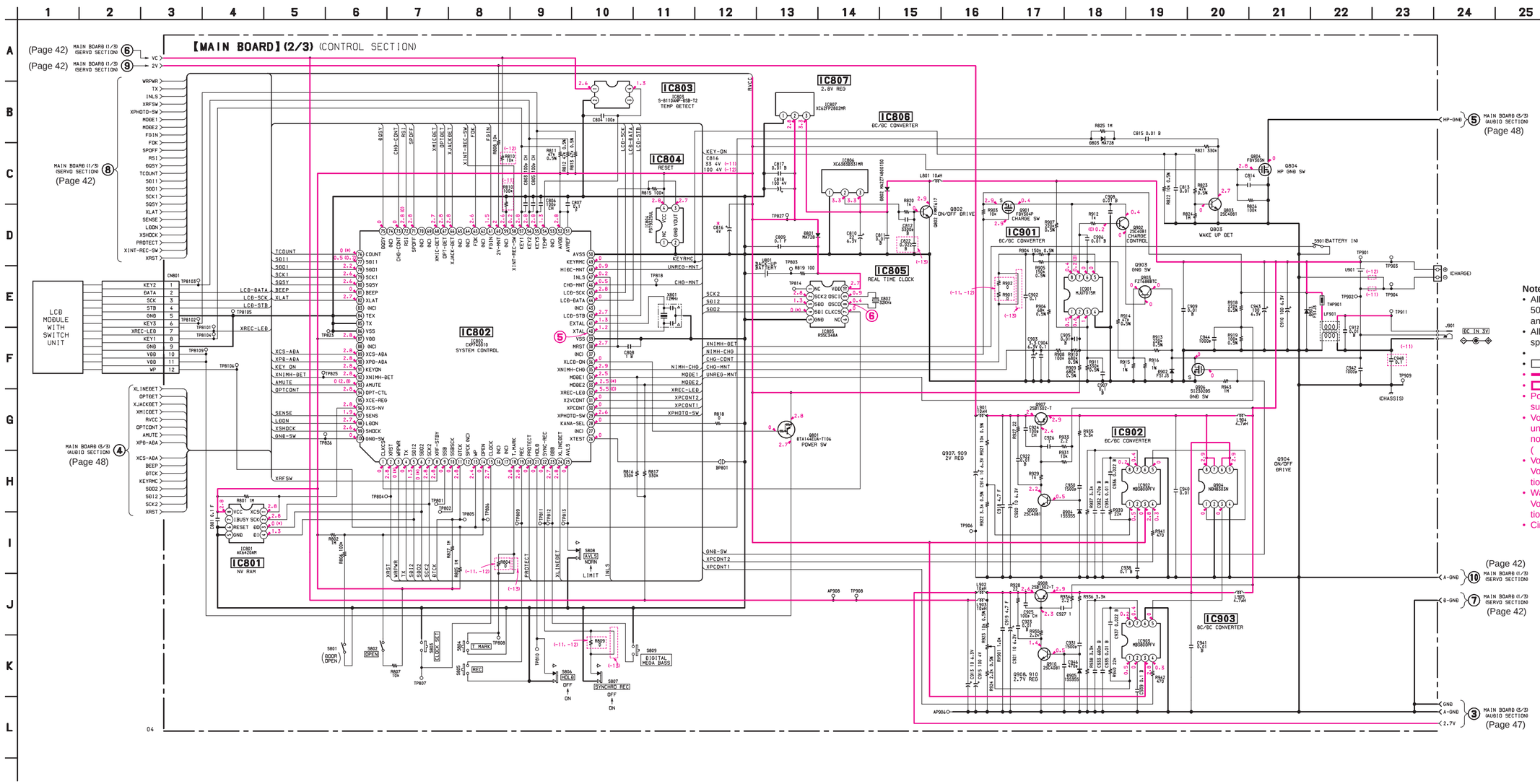
Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- ▬▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
  ✻ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : PB (digital)
  ⇨ : REC (digital)
- Abbreviation
  HK : Hong Kong model.
  JE : Tourist model.



6-9. SCHEMATIC DIAGRAM — MAIN SECTION (2/3) — • Refer to page 49 for IC Block Diagrams.


【MAIN BOARD】(2/3) (CONTROL SECTION)
IC801 NV RAM
IC802 SYSTEM CONTROL
IC803 TEMP DETECT
IC804 RESET
IC805 REAL TIME CLOCK
IC806 DC/DC CONVERTER
IC807 2.8V REG
IC901 DC/DC CONVERTER
IC902 DC/DC CONVERTER
IC903 DC/DC CONVERTER
LCD MODULE WITH SWITCH UNIT
Q907, 909 2V REG
Q908, 910 2.7V REG
(Page 42) MAIN BOARD (1/3) (SERVO SECTION)
(Page 48) MAIN BOARD (5/5) (AUDIO SECTION)
(Page 47) MAIN BOARD (3/5) (AUDIO SECTION)

• **Waveforms**

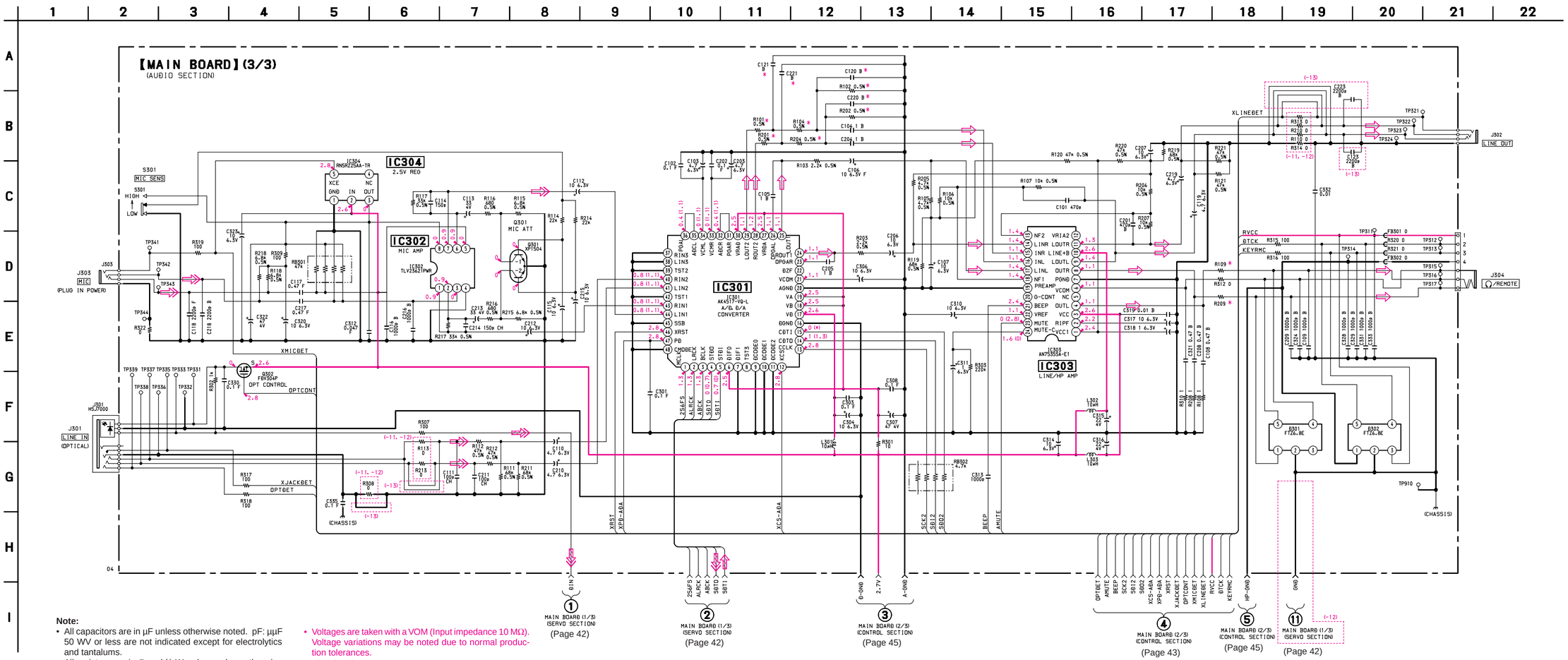
⑤ VOLT/DIV : 1V AC
TIME/DIV : 20nsec
2.3Vp-p
12kHz
IC802 ㊵

⑥ VOLT/DIV : 0.1V AC
TIME/DIV : 10μsec
1.4Vp-p
32kHz
IC805 ⑧

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- : panel designation.
- : B+ Line.
- : adjustment for repair.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

6-10. SCHEMATIC DIAGRAM — MAIN SECTION (3/3) — • Refer to page 49 for IC Block Diagrams.



Note:

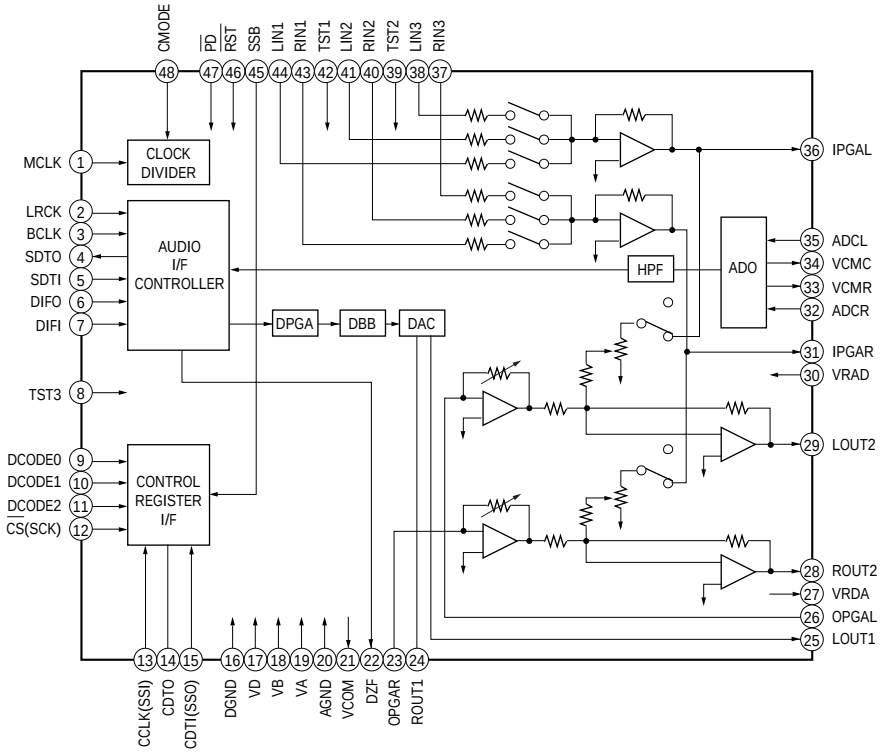
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- ▬ : B+ Line.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : PB
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : PB (analog)
  ⇨ : REC (analog)
  ⇨ : PB (digital)
  ⇨ : REC (digital)
- Abbreviation
  HK : Hong Kong model.
  JE : Tourist model.

*DIFFERENCE LIST

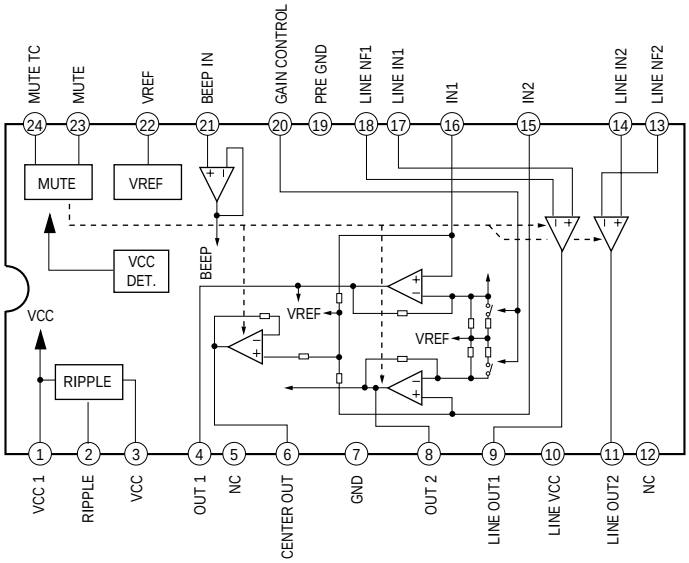
REF NO	US, CND, E, HK, JE MODEL	AEP, UK, FR, AUS MODEL
C120, 121 C220, 221	0.0022	0.001
R101, 201	1.5K	2.2K
R102, 202	10K	4.7K
R104, 204	1.5K	2.2K
R109, 209	0	3.3

• IC Block Diagrams

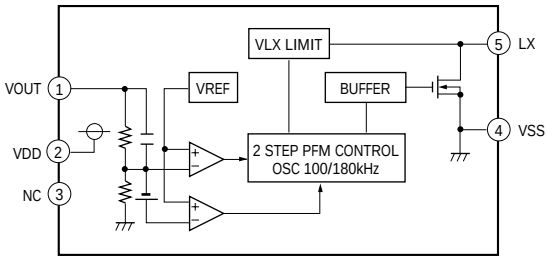
IC301 AK4517-VQ-L



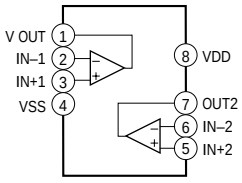
IC303 AN7535SA-E1



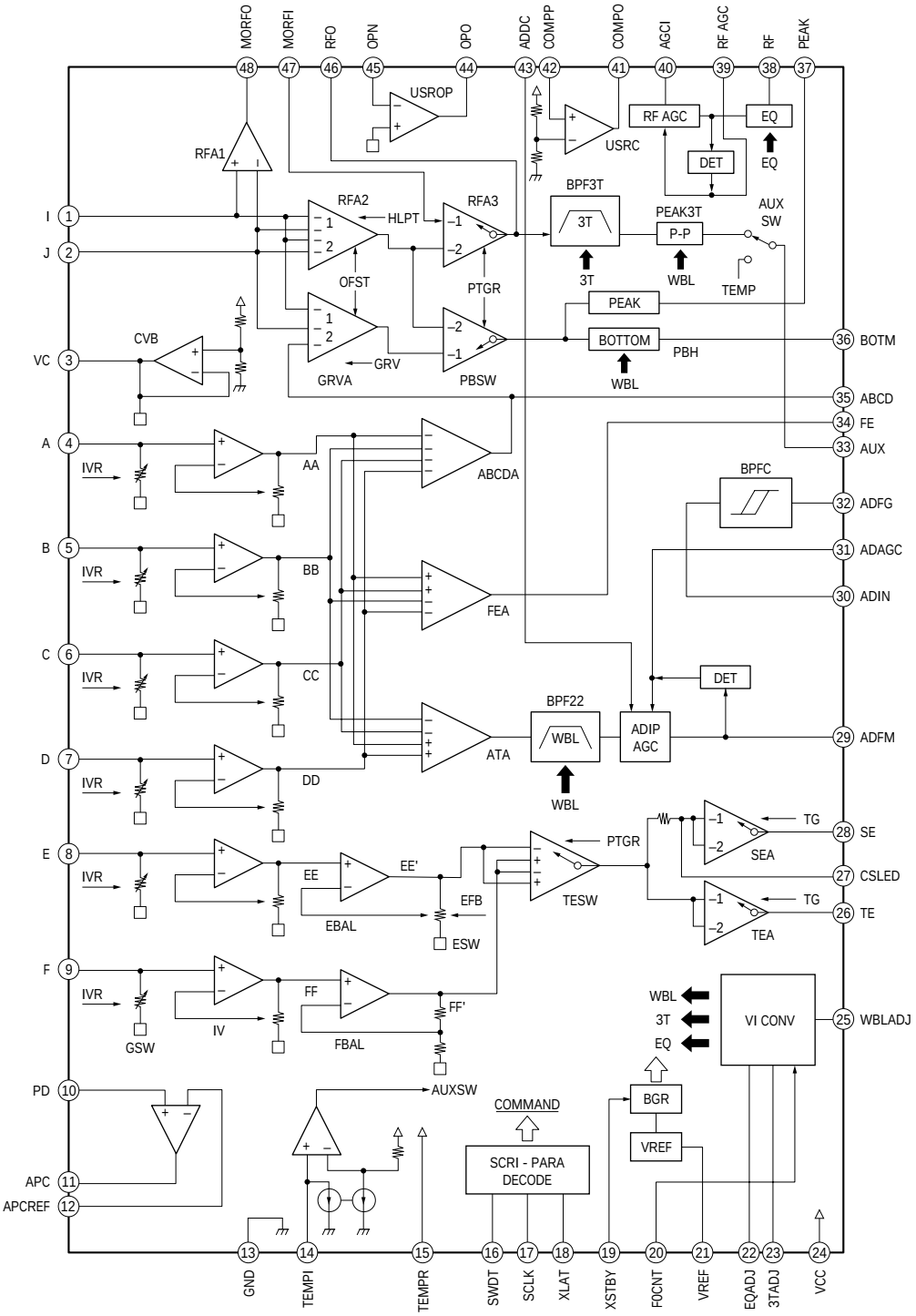
IC601 XC6383E401MR



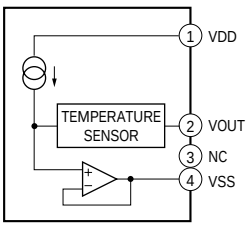
IC302 TLV23621PW



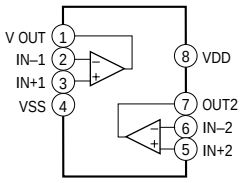
IC501 CXA2523AR



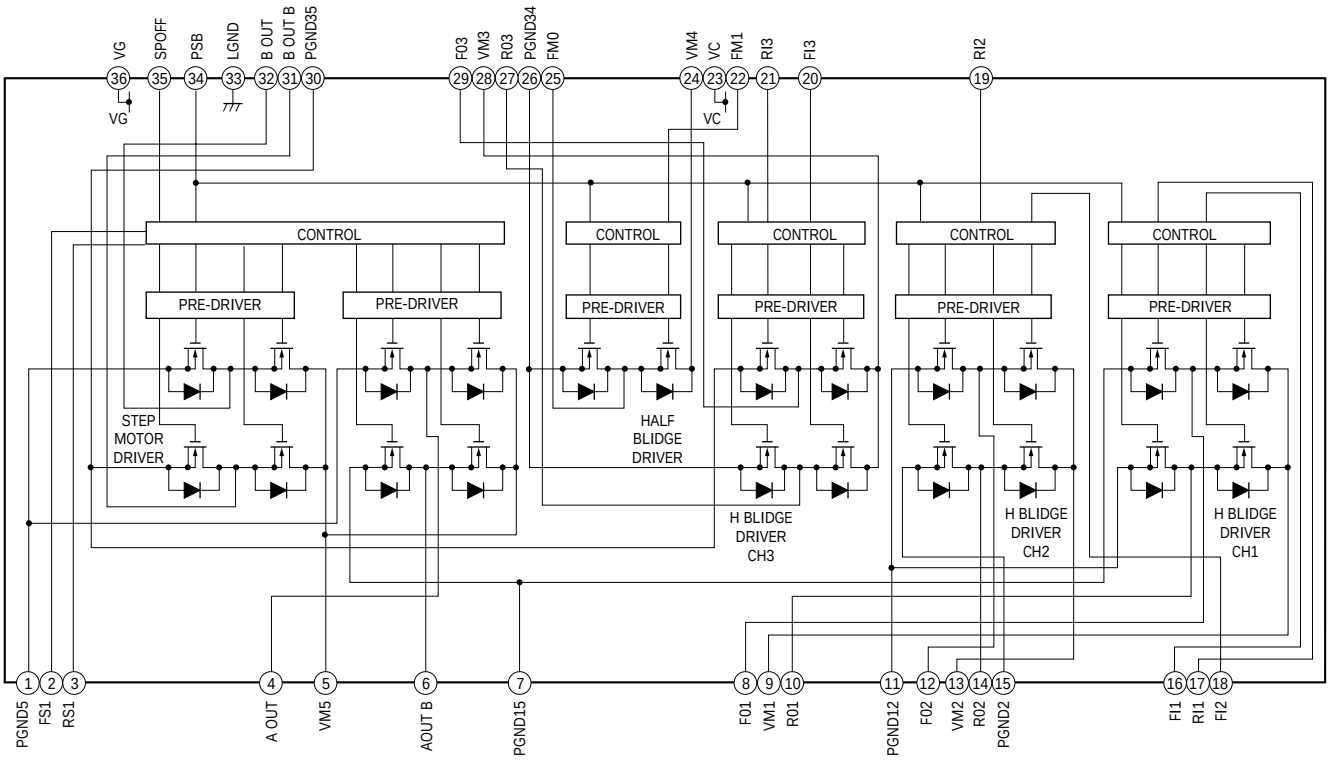
IC803 S-8110ANP-DSB-T2



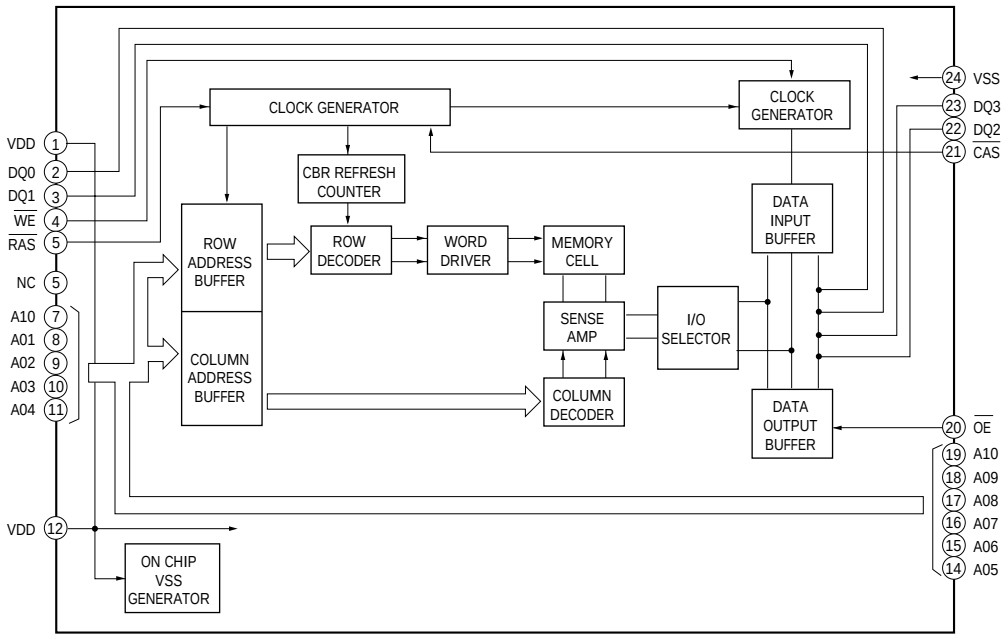
IC901 NJU7015M



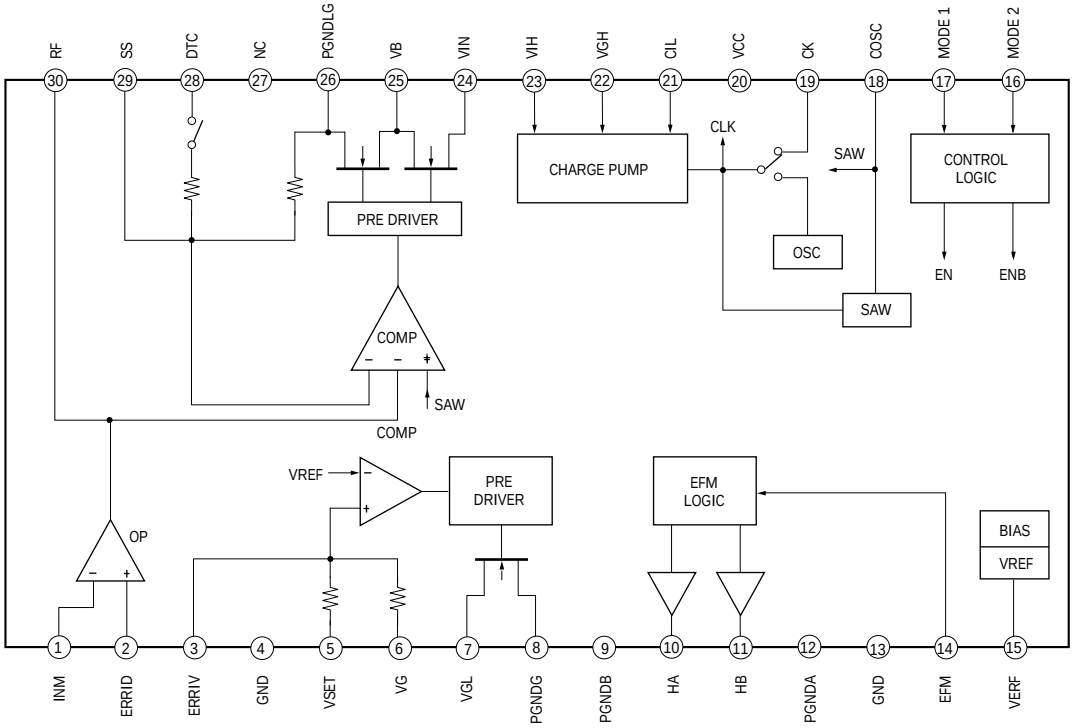
IC505 MPC17A58DTBEL



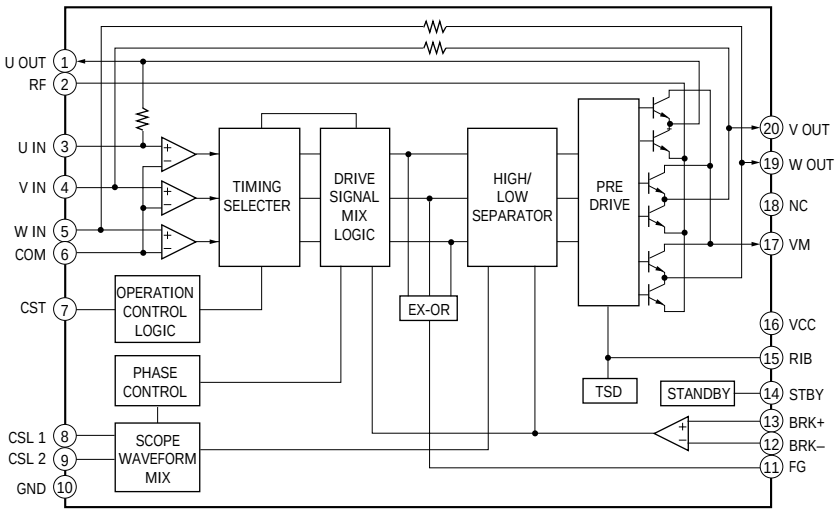
IC509 MN41X17400CTT



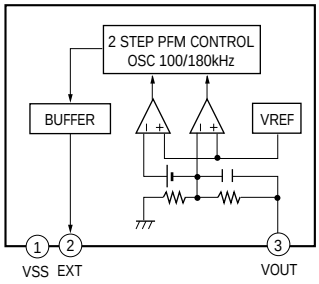
IC602 MPC18A20VMEL



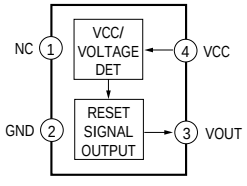
IC701 BA6966FV



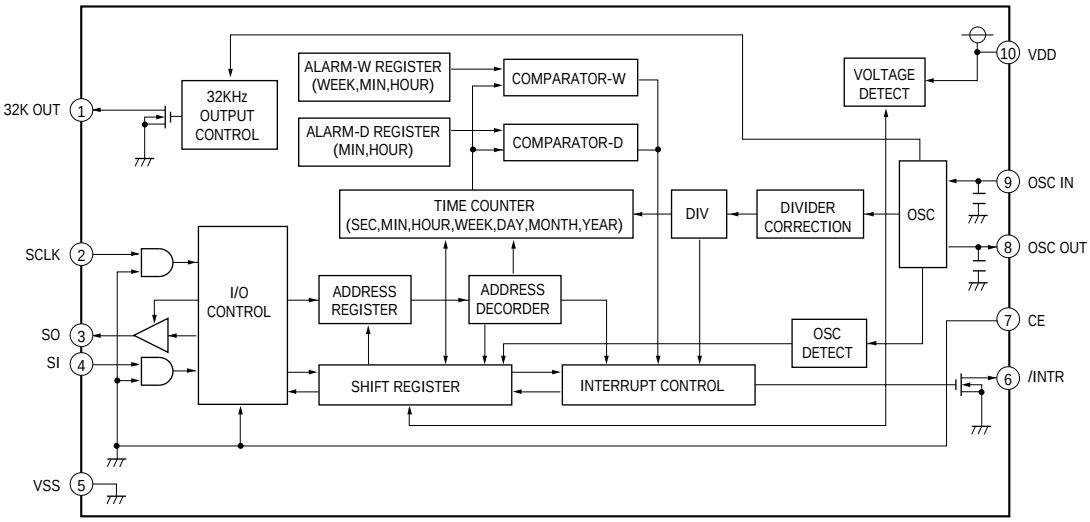
IC806 XC6383B331MR



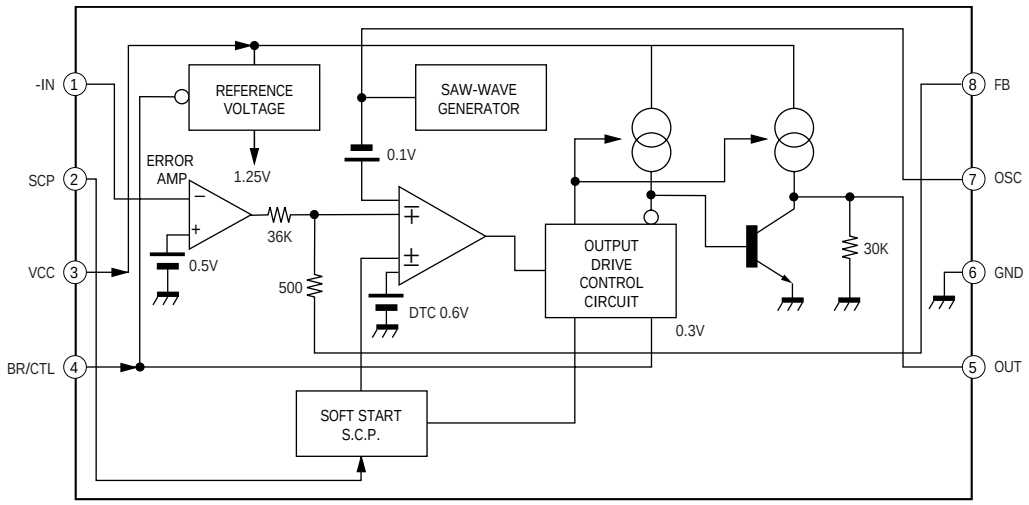
IC804 PST9325UL



IC805 RS5C348A



IC902, 903 MB3800-M03



SECTION 7
EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  FR : French model
  HK : Hong Kong model
  JE : Tourist model

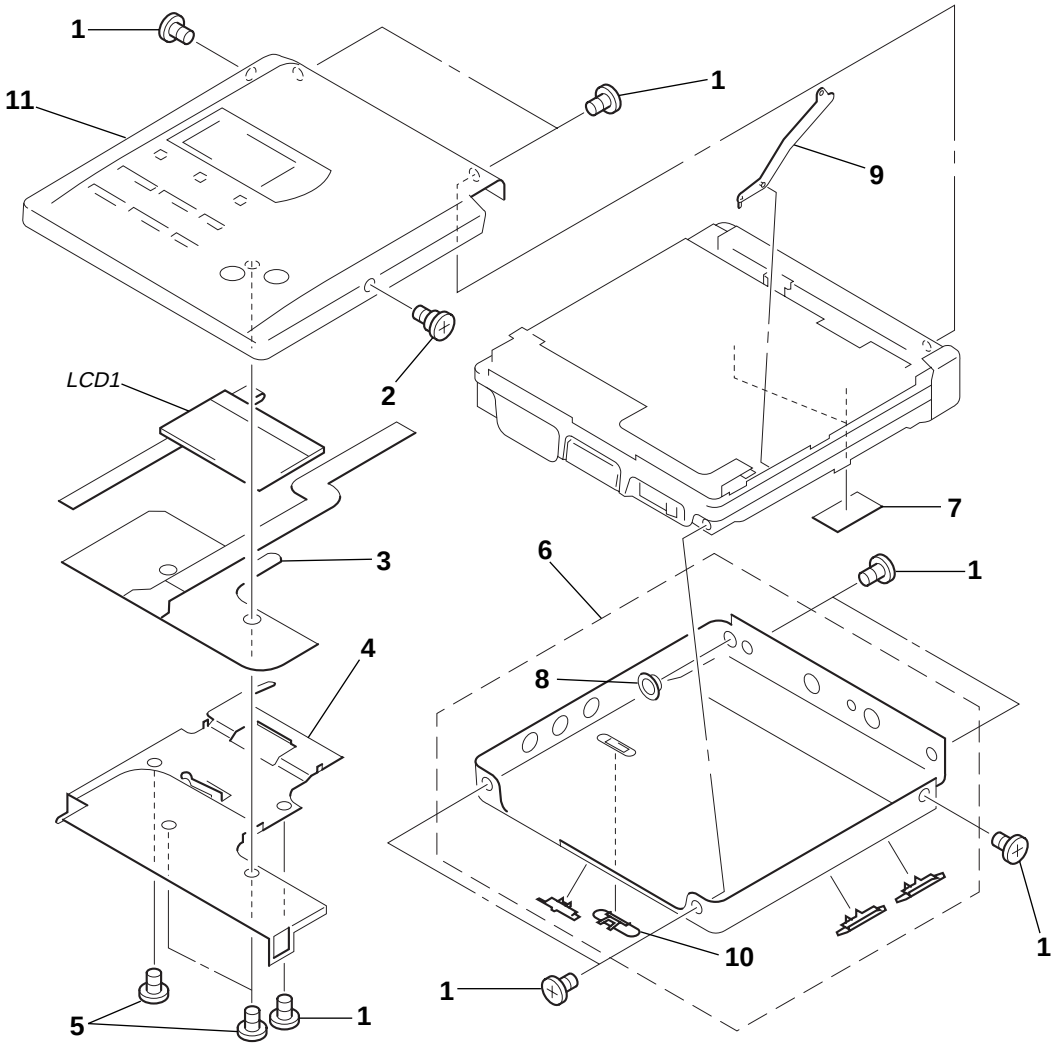
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ ↑
  Parts Color Cabinet's Color

- Accessories and packing materials are given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

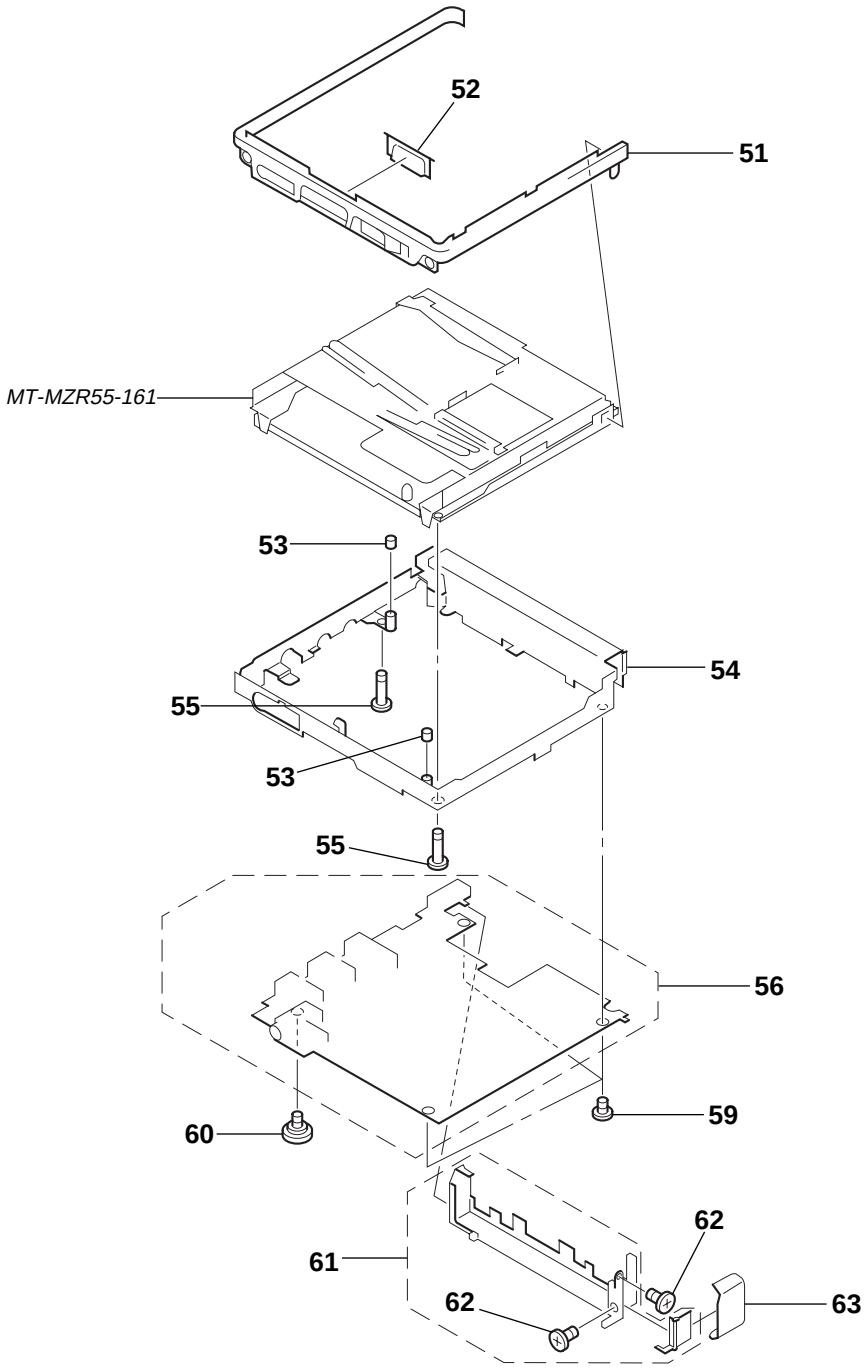
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

7-1. PANEL SECTION



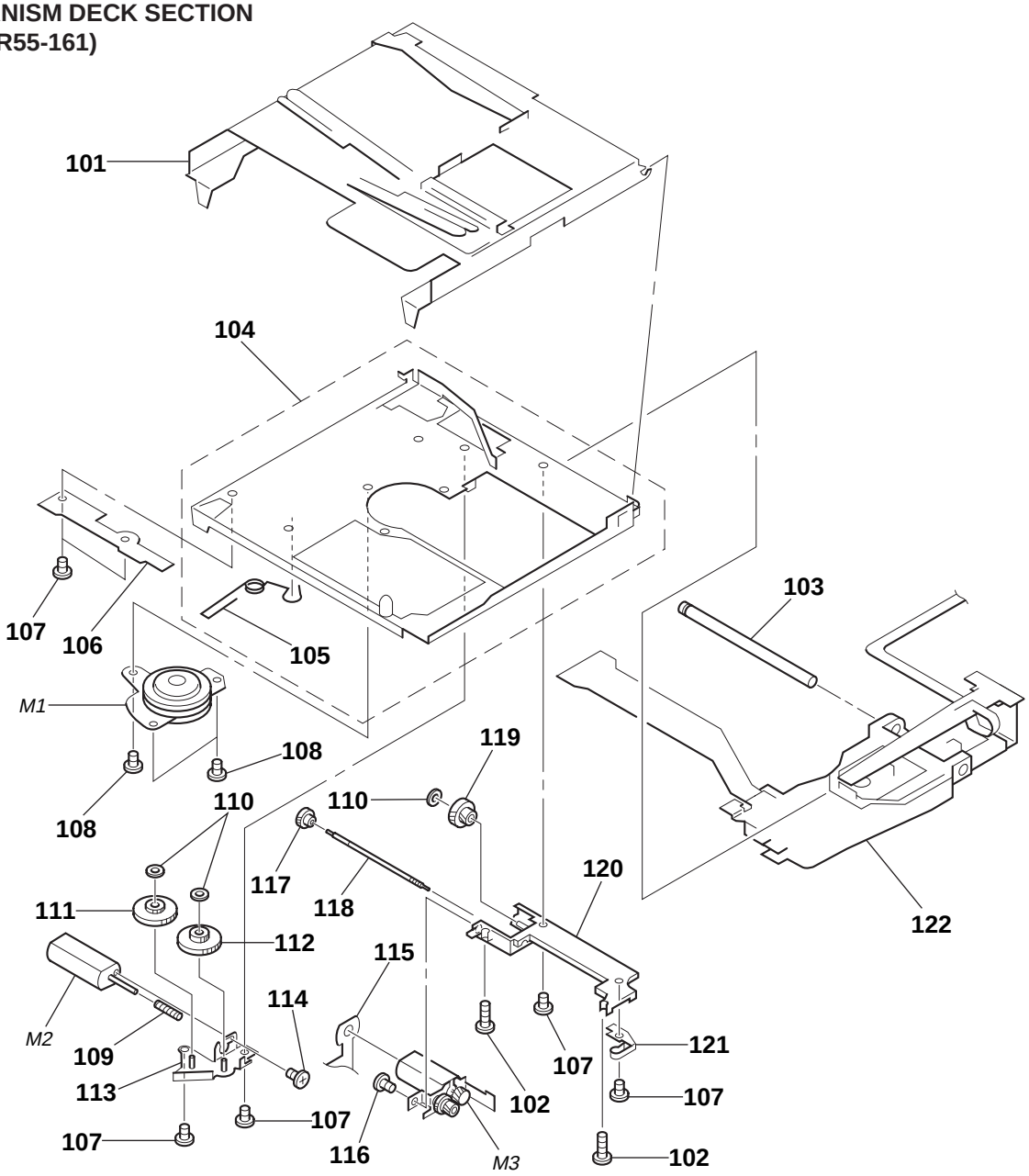
Ref. No.	Part No.	Description	Remark
1	4-963-883-21	SCREW (M1.4), PRECISION PAN	
2	4-212-847-01	SCREW (CLICK ARM), STEP	
3	1-803-307-11	SWITCH MODULE	
4	4-212-856-01	BRACKET (LCD)	
5	4-984-017-01	SCREW (1.7), TAPPING	
6	X-4950-399-1	PANEL (N) ASSY, BOTTOM (GOLD)	
6	X-4950-400-1	PANEL (L) ASSY, BOTTOM (BLUE)	
6	X-4950-401-1	PANEL (Y) ASSY, BOTTOM (YELLOW)	
7	4-213-809-01	SHEET (MIC)	
8	3-010-287-01	COLLAR (DC IN)	
9	X-4950-406-1	ARM ASSY, CLICK	
10	3-938-805-72	KNOB (DOLBY) (SILVER) ... (for GOLD, YELLOW)	
10	3-938-805-81	KNOB (DOLBY) (PURPLE) ... (for BLUE)	
11	X-4950-559-1	SERVICE ASSY, UPPER PANEL (N) (GOLD)	
11	X-4950-560-1	SERVICE ASSY, UPPER PANEL (L) (BLUE)	
11	X-4950-561-1	SERVICE ASSY, UPPER PANEL (Y) (YELLOW)	
LCD1	1-803-308-11	LCD MODULE	

7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
51	X-4950-398-1	BELT ASSY, ORNAMENTAL	
52	4-212-844-01	BUTTON (OPEN) (GOLD)	
52	4-212-844-11	BUTTON (OPEN) (SILVER) ... (for BLUE, YELLOW)	
53	4-212-820-01	DAMPER	
54	X-4950-396-3	CHASSIS (MAIN) ASSY	
55	4-212-821-01	SCREW (MD), STEP	
56	A-3323-076-A	MAIN BOARD, COMPLETE (E,HK,JE)	
56	A-3323-130-A	MAIN BOARD, COMPLETE (US,CND)	
56	A-3323-131-A	MAIN BOARD, COMPLETE (AEP,UK,AUS)	
56	A-3323-132-A	MAIN BOARD, COMPLETE (FR)	
59	3-335-797-91	SCREW (M1.4), TOOTHED LOCK	
60	4-995-436-01	SCREW (HP), STEP	
61	X-4950-397-3	CASE ASSY, BATTERY	
62	4-963-883-21	SCREW (M1.4), PRECISION PAN	
63	4-212-824-02	LID, BATTERY CASE (GOLD)	
63	4-212-824-12	LID, BATTERY CASE (BLUE)	
63	4-212-824-22	LID, BATTERY CASE (YELLOW)	

7-3. MECHANISM DECK SECTION (MT-MZR55-161)



The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	X-4950-391-1	HOLDER ASSY	
102	3-704-197-31	SCREW (M1.4X3.0), LOCKING	
103	4-212-312-01	SHAFT, MAIN	
104	X-4950-390-1	CHASSIS ASSY	
105	4-995-585-01	SPRING (LIMITER), TORSION	
106	1-418-079-11	PR UNIT	
107	4-963-883-41	SCREW (M1.4), PRECISION PAN	
108	4-963-883-01	SCREW (M1.4), PRECISION PAN	
109	4-212-308-01	GEAR, WORM	
110	3-338-645-31	WASHER (0.8-2.5)	
111	4-212-310-01	GEAR (RACK)	
112	4-212-309-01	GEAR (WORM WHEEL)	
113	X-4950-392-1	CHASSIS ASSY, GEAR	
114	4-212-862-01	SCREW (M1X1.3), PRECISION	
115	1-671-605-11	MD FLEXIBLE BOARD	
116	3-015-033-01	SCREW (DIA. 1.4X4), PRECISION	
117	4-995-586-01	GEAR (SD)	
118	4-900-615-01	SCREW, LEAD	
119	4-995-578-01	GEAR (SC)	
120	X-4949-131-1	BRACKET (S) ASSY	
121	4-995-571-01	SPRING, THRUST	
⚠122	X-4950-546-1	SERVICE ASSY, OP	
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)	
M2	1-763-174-11	MOTOR, DC (LOADING)	
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED	

SECTION 8
ELECTRICAL PARTS LIST

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation
  AUS : Australian model
  CND : Canadian model
  FR : French model
  HK : Hong Kong model
  JE : Tourist model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH
- Board part number suffix
  -11 : Number suffix is -11
  -12 : Number suffix is -12
  -13 : Number suffix is -13

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3323-076-A	MAIN BOARD, COMPLETE (E,HK,JE)			
	A-3323-130-A	MAIN BOARD, COMPLETE (US,CND)			
	A-3323-131-A	MAIN BOARD, COMPLETE (AEP,UK,AUS)			
	A-3323-132-A	MAIN BOARD, COMPLETE (FR)			
		**********			
		< CAPACITOR >			
C101	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C102	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C103	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C104	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C105	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C106	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C107	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C108	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C109	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C110	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C111	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C112	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C113	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C114	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C115	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C116	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C117	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C118	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C119	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C120	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (US,CND,E,HK,JE)
C120	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V (AEP,UK,FR,AUS)
C121	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (US,CND,E,HK,JE)
C121	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V (AEP,UK,FR,AUS)
C123	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (-13)
C201	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C202	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C203	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C204	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C205	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C206	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C207	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C208	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C209	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C210	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C211	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C212	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C213	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C214	1-164-878-11	CERAMIC CHIP	150PF	5%	16V
C215	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C216	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C217	1-125-985-11	CERAMIC CHIP	0.47uF	10%	25V
C218	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C219	1-125-926-11	TANTAL. CHIP	4.7uF	20%	6.3V
C220	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (US,CND,E,HK,JE)
C220	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V (AEP,UK,FR,AUS)
C221	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (US,CND,E,HK,JE)
C221	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V (AEP,UK,FR,AUS)
C223	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (-13)
C301	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C303	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C304	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C306	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C307	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C308	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C310	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C311	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C312	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C313	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C314	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C315	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C316	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C317	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C318	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C319	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C320	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C321	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C322	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C323	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C324	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C328	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C329	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C330	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C331	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C332	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

MAIN

Ref. No.	Part No.	Description			Remark
C333	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C335	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C501	1-115-169-11	TANTALUM	10uF	20%	6.3V
C504	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C505	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C506	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C507	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C508	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C509	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C510	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C511	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C512	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C514	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C515	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C517	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C518	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C519	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C522	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C524	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C525	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C526	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C529	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C530	1-113-619-11	CERAMIC CHIP	0.47uF	10%	6.3V
C531	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C532	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C533	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C534	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C536	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C537	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C538	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C541	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C542	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	16V
C544	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C545	1-125-984-21	TANTAL. CHIP	22uF	20%	4V
C547	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C548	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C549	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C550	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C551	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C552	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C553	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C574	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C600	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C601	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C602	1-109-813-11	CAP,CHIP	100PF	5%	100V
C603	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V
C604	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C607	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C609	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C701	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
* C703	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C704	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C705	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C706	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C707	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
* C709	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C710	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C711	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C712	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C801	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C803	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C804	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C805	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C806	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C807	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C808	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C809	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C810	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C811	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C812	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C813	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C814	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C815	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C816	1-119-749-11	TANTAL. CHIP	33uF	20%	4V (-11)
C816	1-127-569-11	TANTAL. CHIP	100uF	20%	4V (-12)
C817	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C818	1-127-569-11	TANTAL. CHIP	100uF	20%	4V
C822	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V (-13)
C902	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C903	1-127-578-11	TANTAL. CHIP	3.3uF	20%	6.3V
C904	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C905	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C906	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C907	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C908	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C909	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C910	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C912	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C913	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C914	1-117-919-11	TANTAL. CHIP	10uF	20%	6.3V
C915	1-117-569-11	TANTAL. CHIP	100uF	20%	4V
C918	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C919	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C920	1-115-169-11	TANTALUM	10uF	20%	6.3V
C921	1-115-169-11	TANTALUM	10uF	20%	6.3V
C922	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C923	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C924	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C925	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C926	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C927	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C930	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C931	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C932	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C933	1-164-936-11	CERAMIC CHIP	680PF	10%	16V
C934	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C935	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C936	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C937	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C938	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			Remark
C939	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C940	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C941	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C942	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C943	1-111-253-11	TANTAL. CHIP	100uF	20%	6.3V
C944	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C946	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C948	1-107-826-91	CERAMIC CHIP	0.1uF		16V
					(-11)
		< CONNECTOR >			
* CN501	1-764-504-21	CONNECTOR, FPC (ZIF) 22P			
CN502	1-778-164-21	CONNECTOR, FFC/FPC (ZIF) 16P			
CN601	1-778-711-11	CONNECTOR, FFC/FPC (ZIF) 5P			
CN801	1-778-160-11	CONNECTOR, FFC/FPC (ZIF) 12P			
		< DIODE >			
D301	8-719-066-17	DIODE FTZ6.8E-T148			
D302	8-719-066-17	DIODE FTZ6.8E-T148			
D600	8-719-072-10	DIODE FS05J10-TP			
D601	8-719-072-10	DIODE FS05J10-TP			
D602	8-719-421-27	DIODE MA728			
D801	8-719-421-27	DIODE MA728			
D802	8-719-072-27	DIODE MA2Z748001S0			
D803	8-719-421-27	DIODE MA728			
D902	8-719-072-26	DIODE FS1J3-TP			
D903	8-719-072-26	DIODE FS1J3-TP			
D904	8-719-988-62	DIODE 1SS355			
D905	8-719-988-62	DIODE 1SS355			
		< JUMPER RESISTOR >			
FB301	1-500-444-11	INDUCTOR, FERRITE BEAD			
FB302	1-500-444-11	INDUCTOR, FERRITE BEAD			
FB500	1-216-864-11	METAL CHIP	0	5%	1/16W
					(-11,-12)
FB501	1-216-864-11	METAL CHIP	0	5%	1/16W
					(-11,-12)
FB502	1-216-864-11	METAL CHIP	0	5%	1/16W
					(E,HK,JE)
FB502	1-500-444-11	INDUCTOR, FERRITE BEAD			
					(US,CND,AEP,UK,FR,AUS)
FB503	1-216-864-11	METAL CHIP	0	5%	1/16W
					(E,HK,JE)
FB503	1-500-444-11	INDUCTOR, FERRITE BEAD			
					(US,CND,AEP,UK,FR,AUS)
		< IC >			
IC301	8-759-559-61	IC AK4517-VQ-L			
IC302	8-759-536-71	IC TLV23621PWR			
IC303	8-759-559-58	IC AN7535SA-E1			
IC304	8-759-559-91	IC RN5RZ25AA-TR			
IC501	8-752-080-95	IC CXA2523AR			
IC503	8-752-384-47	IC CXD2652AR			
IC505	8-759-559-60	IC MPC17A58DTBEL			
IC509	8-759-559-57	IC MN41X17400CTT-10T1			

Ref. No.	Part No.	Description		Remark
IC510	8-759-487-20	IC PST9330UL		
IC601	8-759-559-94	IC XC6383E401MR		
IC602	8-759-329-43	IC MPC18A20VM		
IC701	8-759-559-62	IC BA6966FV-E2		
IC801	8-759-468-72	IC AK6420AM-E2		
IC802	8-752-904-97	IC CXP740010-015R		
IC803	8-759-559-93	IC S-8110ANP-DSB-T2		
IC804	8-759-559-95	IC PST9325UL		
IC805	8-759-560-17	IC RS5C348A-E2		
IC806	8-759-530-10	IC XC6383B331MR		
IC807	8-759-569-24	IC XC62FP2802MR		
IC901	8-759-559-89	IC NJU7015R-TE2		
IC902	8-759-427-21	IC MB3800PFV-G-BND-EF		
IC903	8-759-427-21	IC MB3800PFV-G-BND-EF		
J301	8-749-015-08	IC SJ7000 (LINE IN (OPTICAL))		
		< JACK >		
J302	1-779-881-11	JACK (LINE OUT)		
J303	1-779-881-21	JACK (MIC)		
J304	1-778-179-11	JACK (🎧/REMOTE)		
J901	1-785-383-11	JACK, DC (POLARITY UNIFIED TYPE)		
				(DC IN 3V)
		< COIL >		
L301	1-414-754-11	INDUCTOR	10uH	
L302	1-414-754-11	INDUCTOR	10uH	
L303	1-414-754-11	INDUCTOR	10uH	
L501	1-414-398-41	INDUCTOR	10uH	
L502	1-414-398-41	INDUCTOR	10uH	
L504	1-414-398-41	INDUCTOR	10uH	
L506	1-410-389-31	INDUCTOR CHIP	47uH	
L507	1-410-389-31	INDUCTOR CHIP	47uH	
L508	1-410-389-31	INDUCTOR CHIP	47uH	
L509	1-410-389-31	INDUCTOR CHIP	47uH	
L510	1-414-398-41	INDUCTOR	10uH	
L511	1-410-389-31	INDUCTOR CHIP	47uH	
L601	1-414-404-41	INDUCTOR	100uH	
L602	1-412-330-41	INDUCTOR	330uH	
L603	1-414-398-41	INDUCTOR	10uH	
L801	1-414-398-41	INDUCTOR	10uH	
L901	1-414-398-41	INDUCTOR	10uH	
L902	1-414-398-41	INDUCTOR	10uH	
L903	1-414-398-41	INDUCTOR	10uH	
L904	1-424-673-41	COIL, CHOKE	4.7uH	
L905	1-424-673-41	COIL, CHOKE	4.7uH	
		< EMI FILTER >		
LF901	1-416-405-21	FILTER, CHIP EMI (COMMON MODE)		
		< TRANSISTOR >		
Q301	8-729-012-88	TRANSISTOR XP1504-(TX)		
Q302	8-729-046-49	TRANSISTOR FDV304P		
Q502	8-729-046-46	TRANSISTOR XN04407001SO		

MAIN

Ref. No.	Part No.	Description			Remark
Q503	8-729-930-13	TRANSISTOR	UMH2		
Q601	8-729-046-43	TRANSISTOR	HAT2051T-EL		
Q602	8-729-046-42	TRANSISTOR	HAT2050T-EL		
Q701	8-729-028-91	TRANSISTOR	DTA144EUA-T106		
Q801	8-729-028-91	TRANSISTOR	DTA144EUA-T106		
Q802	8-729-041-51	TRANSISTOR	FMMT617TA		
Q803	8-729-905-35	TRANSISTOR	2SC4081-R		
Q804	8-729-046-48	TRANSISTOR	FDV303N		
Q901	8-729-046-49	TRANSISTOR	FDV304P		
Q902	8-729-905-35	TRANSISTOR	2SC4081-R		
Q903	8-729-047-10	TRANSISTOR	FZT688BTC		
Q904	8-729-046-50	TRANSISTOR	NDH8303N		
Q906	8-729-046-45	TRANSISTOR	SI2302DS-T1		
Q907	8-729-822-62	TRANSISTOR	2SB1302-T		
Q908	8-729-822-62	TRANSISTOR	2SB1302-T		
Q909	8-729-905-35	TRANSISTOR	2SC4081-R		
Q910	8-729-905-35	TRANSISTOR	2SC4081-R		
		< RESISTOR >			
R101	1-218-851-11	RES, CHIP	1.5K	0.50% 1/16W (US,CND,E,HK,JE)	
R101	1-218-855-11	RES, CHIP	2.2K	0.5% 1/16W (AEP,UK,FR,AUS)	
R102	1-218-871-11	METAL CHIP	10K	0.50% 1/16W (US,CND,E,HK,JE)	
R102	1-218-863-11	RES, CHIP	4.7K	0.5% 1/16W (AEP,UK,FR,AUS)	
R103	1-218-855-11	RES, CHIP	2.2K	0.50% 1/16W	
R104	1-218-851-11	RES, CHIP	1.5K	0.50% 1/16W (US,CND,E,HK,JE)	
R104	1-218-855-11	RES, CHIP	2.2K	0.5% 1/16W (AEP,UK,FR,AUS)	
R105	1-218-863-11	RES, CHIP	4.7K	0.50% 1/16W	
R106	1-218-871-11	RES, CHIP	10K	0.50% 1/16W	
R107	1-218-871-11	RES, CHIP	10K	0.50% 1/16W	
R108	1-218-446-11	METAL CHIP	1	5% 1/16W	
R109	1-216-864-11	METAL CHIP	0	5% 1/16W (US,CND,E,HK,JE)	
R109	1-216-791-11	METAL CHIP	3.3	5% 1/16W (AEP,UK,FR,AUS)	
R110	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R111	1-218-891-11	RES, CHIP	68K	0.50% 1/16W	
R112	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	
R113	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R114	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R115	1-218-867-11	RES, CHIP	6.8K	0.50% 1/16W	
R116	1-218-843-11	RES, CHIP	680	0.50% 1/16W	
R117	1-218-883-11	RES, CHIP	33K	0.50% 1/16W	
R118	1-218-867-11	RES, CHIP	6.8K	0.50% 1/16W	
R119	1-218-891-11	RES, CHIP	68K	0.50% 1/16W	
R120	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	
R121	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	

Ref. No.	Part No.	Description			Remark
R201	1-218-851-11	RES, CHIP	1.5K	0.50% 1/16W (US,CND,E,HK,JE)	
R201	1-218-855-11	RES, CHIP	2.2K	0.5% 1/16W (AEP,UK,FR,AUS)	
R202	1-218-871-11	RES, CHIP	10K	0.50% 1/16W (US,CND,E,HK,JE)	
R202	1-218-863-11	RES, CHIP	4.7K	0.5% 1/16W (AEP,UK,FR,AUS)	
R203	1-218-855-11	RES, CHIP	2.2K	0.50% 1/16W	
R204	1-218-851-11	RES, CHIP	1.5K	0.50% 1/16W (US,CND,E,HK,JE)	
R204	1-218-855-11	RES, CHIP	2.2K	0.5% 1/16W (AEP,UK,FR,AUS)	
R205	1-218-863-11	RES, CHIP	4.7K	0.50% 1/16W	
R206	1-218-871-11	RES, CHIP	10K	0.50% 1/16W	
R207	1-218-871-11	RES, CHIP	10K	0.50% 1/16W	
R208	1-218-446-11	METAL CHIP	1	5% 1/16W	
R209	1-216-864-11	METAL CHIP	0	5% 1/16W (US,CND,E,HK,JE)	
R209	1-216-791-11	METAL CHIP	3.3	5% 1/16W (AEP,UK,FR,AUS)	
R210	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R211	1-218-891-11	RES, CHIP	68K	0.50% 1/16W	
R212	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	
R213	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R214	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R215	1-218-867-11	RES, CHIP	6.8K	0.50% 1/16W	
R216	1-218-843-11	RES, CHIP	680	0.50% 1/16W	
R217	1-218-883-11	RES, CHIP	33K	0.50% 1/16W	
R218	1-218-867-11	RES, CHIP	6.8K	0.50% 1/16W	
R219	1-218-891-11	RES, CHIP	68K	0.50% 1/16W	
R220	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	
R221	1-218-887-11	RES, CHIP	47K	0.50% 1/16W	
R301	1-216-797-11	METAL CHIP	10	5% 1/16W	
R302	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R303	1-216-849-11	METAL CHIP	220K	5% 1/16W	
R307	1-216-809-11	METAL CHIP	100	5% 1/16W	
R308	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R309	1-216-809-11	METAL CHIP	100	5% 1/16W	
R310	1-218-446-11	METAL CHIP	1	5% 1/16W	
R312	1-216-864-11	METAL CHIP	0	5% 1/16W	
R313	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R314	1-216-864-11	METAL CHIP	0	5% 1/16W (-11,-12)	
R315	1-216-809-11	METAL CHIP	100	5% 1/16W	
R316	1-216-809-11	METAL CHIP	100	5% 1/16W	
R317	1-216-809-11	METAL CHIP	100	5% 1/16W	
R318	1-216-809-11	METAL CHIP	100	5% 1/16W	
R319	1-216-809-11	METAL CHIP	100	5% 1/16W	
R320	1-500-444-11	INDUCTOR, FERRITE BEAD			
R321	1-500-444-11	INDUCTOR, FERRITE BEAD			
R322	1-216-864-11	METAL CHIP	0	5% 1/16W	

Ref. No.	Part No.	Description			Remark
R500	1-216-864-11	METAL CHIP	0	5%	1/16W (E,HK,JE)
R500	1-500-444-11	INDUCTOR, FERRITE BEAD			(US,CND,AEP,UK,FR,AUS)
R501	1-216-835-11	METAL CHIP	15K	5%	1/16W
R502	1-216-835-11	METAL CHIP	15K	5%	1/16W
R503	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R504	1-216-859-11	RES, CHIP	1.5M	5%	1/16W
R505	1-218-446-11	METAL CHIP	1	5%	1/16W
R506	1-216-811-11	METAL CHIP	150	5%	1/16W
R507	1-216-833-11	METAL CHIP	10K	5%	1/16W
R508	1-216-817-11	METAL CHIP	470	5%	1/16W
R509	1-216-853-11	METAL CHIP	470K	5%	1/16W
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W
R512	1-216-864-11	METAL CHIP	0	5%	1/16W (-12)
R513	1-216-843-11	METAL CHIP	68K	5%	1/16W
R514	1-216-864-11	METAL CHIP	0	5%	1/16W
R515	1-216-864-11	METAL CHIP	0	5%	1/16W
R516	1-216-821-11	METAL CHIP	1K	5%	1/16W
R517	1-216-803-11	METAL CHIP	33	5%	1/16W
R519	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R520	1-216-841-11	METAL CHIP	47K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R522	1-216-864-11	METAL CHIP	0	5%	1/16W
R523	1-216-817-11	METAL CHIP	470	5%	1/16W (US,CND,AEP,UK,FR,AUS)
R523	1-216-864-11	METAL CHIP	0	5%	1/16W (E,HK,JE)
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-853-11	METAL CHIP	470K	5%	1/16W
R528	1-216-821-11	METAL CHIP	1K	5%	1/16W
R529	1-216-821-11	METAL CHIP	1K	5%	1/16W
R530	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R545	1-216-845-11	METAL CHIP	100K	5%	1/16W
R546	1-216-841-11	METAL CHIP	47K	5%	1/16W
R549	1-216-845-11	METAL CHIP	100K	5%	1/16W
R554	1-216-821-11	METAL CHIP	1K	5%	1/16W
R559	1-216-811-11	METAL CHIP	150	5%	1/16W
R563	1-216-839-11	METAL CHIP	33K	5%	1/16W
R564	1-216-843-11	METAL CHIP	68K	5%	1/16W
R565	1-216-849-11	METAL CHIP	220K	5%	1/16W
R602	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R603	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R702	1-216-833-11	METAL CHIP	10K	5%	1/16W
R703	1-216-815-11	METAL CHIP	330	5%	1/16W
R704	1-216-833-11	METAL CHIP	10K	5%	1/16W
R705	1-219-724-11	METAL CHIP	1	1%	1/4W
R706	1-216-835-11	METAL CHIP	15K	5%	1/16W
R710	1-216-864-11	METAL CHIP	0	5%	1/16W
R801	1-216-857-11	METAL CHIP	1M	5%	1/16W
R802	1-216-857-11	METAL CHIP	1M	5%	1/16W
R804	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R805	1-216-857-11	METAL CHIP	1M	5%	1/16W
R806	1-216-845-11	METAL CHIP	100K	5%	1/16W
R807	1-216-833-11	METAL CHIP	10K	5%	1/16W
R808	1-216-833-11	METAL CHIP	10K	5%	1/16W
R809	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R810	1-216-845-11	METAL CHIP	100K	5%	1/16W (-11)
R810	1-216-833-11	METAL CHIP	10K	5%	1/16W (-12)
R811	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R812	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R813	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R815	1-216-845-11	METAL CHIP	100K	5%	1/16W
R816	1-216-851-11	METAL CHIP	330K	5%	1/16W
R817	1-216-851-11	METAL CHIP	330K	5%	1/16W
R818	1-216-864-11	METAL CHIP	0	5%	1/16W
R819	1-216-809-11	METAL CHIP	100	5%	1/16W
R820	1-216-821-11	METAL CHIP	1K	5%	1/16W
R821	1-216-851-11	METAL CHIP	330K	5%	1/16W
R822	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R823	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R824	1-216-857-11	METAL CHIP	1M	5%	1/16W
R825	1-216-857-11	METAL CHIP	1M	5%	1/16W
R826	1-216-845-11	METAL CHIP	100K	5%	1/16W
R827	1-216-857-11	METAL CHIP	1M	5%	1/16W
R901	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R902	1-216-864-11	METAL CHIP	0	5%	1/16W (-11,-12)
R903	1-216-833-11	METAL CHIP	10K	5%	1/16W
R904	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R905	1-218-899-11	RES, CHIP	150K	0.50%	1/16W
R906	1-218-891-11	RES, CHIP	68K	0.50%	1/16W
R907	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W
R909	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R910	1-218-915-11	RES, CHIP	680K	0.50%	1/16W
R911	1-218-907-11	RES, CHIP	330K	0.50%	1/16W
R912	1-216-821-11	METAL CHIP	1K	5%	1/16W
R913	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R914	1-218-887-11	RES, CHIP	47K	0.50%	1/16W
R915	1-219-724-11	METAL CHIP	1	1%	1/4W
R916	1-219-724-11	METAL CHIP	1	1%	1/4W
R918	1-218-903-11	RES, CHIP	220K	0.50%	1/16W
R919	1-218-895-11	RES, CHIP	100K	0.50%	1/16W
R921	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R922	1-218-859-11	RES, CHIP	3.3K	0.50%	1/16W
R923	1-218-871-11	RES, CHIP	10K	0.50%	1/16W
R924	1-218-855-11	RES, CHIP	2.2K	0.50%	1/16W
R927	1-216-801-11	METAL CHIP	22	5%	1/16W
R928	1-216-801-11	METAL CHIP	22	5%	1/16W
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W
R930	1-216-825-11	METAL CHIP	2.2K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R931	1-216-833-11	METAL CHIP	10K	5%	1/16W
R933	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R934	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R935	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R936	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R937	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R938	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R939	1-216-837-11	METAL CHIP	22K	5%	1/16W
R940	1-216-837-11	METAL CHIP	22K	5%	1/16W
R941	1-216-817-11	METAL CHIP	470	5%	1/16W
R942	1-216-817-11	METAL CHIP	470	5%	1/16W
R943	1-216-857-11	METAL CHIP	1M	5%	1/16W
		< NETWORK RESISTOR >			
RB301	1-233-971-11	RES, NETWORK (CHIP TYPE)	47K		
RB302	1-233-965-11	RES, NETWORK (CHIP TYPE)	4.7K		
RB501	1-233-963-21	RES, NETWORK (CHIP TYPE)	2.2K		
		< VARIABLE RESISTOR >			
RV901	1-223-991-21	RES, CARBON ADJ	1K		
		< SWITCH >			
S301	1-762-078-11	SWITCH, SLIDE (MIC SENS)			
S801	1-762-805-21	SWITCH, PUSH (1 KEY) (DOOR OPEN)			
S802	1-572-467-61	SWITCH, PUSH (1 KEY) (OPEN)			
S803	1-572-921-11	SWITCH, KEY BOARD (CLOCK SET)			
S804	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (T MARK)			
S805	1-771-331-41	SWITCH, PUSH (1 KEY) (REC)			
S806	1-762-078-11	SWITCH, SLIDE (HOLD)			
S807	1-762-078-11	SWITCH, SLIDE (SYNCHRO REC)			
S808	1-762-078-11	SWITCH, SLIDE (AVLS)			
S809	1-771-517-21	SWITCH, TACTILE (EVQPUK02K) (DIGITAL MEGA BASS)			
S901	1-771-331-41	SWITCH, PUSH (1 KEY) (BATTERY IN)			
		< THERMISTOR >			
THP901	1-533-817-21	THERMISTOR			
		< BATTERY >			
* U801	1-528-924-11	BATTERY			
		< VIBRATOR >			
X501	1-767-498-11	OSCILLATOR, CRYSTAL (22.5MHz)			
X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)			
X802	1-579-886-11	VIBRATOR, CRYSTAL (32kHz)			

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
3	1-803-307-11	SWITCH MODULE	
106	1-418-079-11	PR UNIT	
115	1-671-605-11	MD FLEXIBLE BOARD	
⚠ 122	X-4950-546-1	SERVICE ASSY, OP	
LCD1	1-803-308-11	LCD MODULE	
M1	1-763-011-11	MOTOR (SPINDLE) (INCLUDING TURNTABLE)	
M2	1-763-174-11	MOTOR, DC (LOADING)	
M3	A-3311-972-A	MOTOR BLOCK ASSY, SLED	

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		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-418-002-11	REMOTE CONTROL UNIT (RM-MZR55)	
⚠	1-418-028-11	ADAPTOR, AC (AC-MZR55) (E,JE)	
⚠	1-418-049-12	ADAPTOR, AC (AC-MZR55) (UK,HK)	
⚠	1-418-275-11	ADAPTOR, AC (AC-MZR55) (US,CND)	
	1-418-276-11	ADAPTOR, AC (AC-MZR55) (AEP,FR)	
	1-418-277-11	ADAPTOR, AC (AC-MZR55) (AUS)	
	1-528-842-11	BATTERY, NICKEL HYDROGEN (NH-14WM)	
⚠	1-569-007-11	ADAPTOR, CONVERSION 2P (E,JE)	
	1-759-693-11	CASE, BATTERY	
	1-779-504-11	CONNECTOR, OPTICAL	
	3-008-521-01	CASE, BATTERY CHARGE	
	3-864-987-12	MANUAL, INSTRUCTION (GREEK,SPANISH, PORTUGUESE,SWEDISH,FINNISH,RUSSIAN) (AEP,E,JE)	
	3-864-987-21	MANUAL, INSTRUCTION (ENGLISH) (US,UK,HK,AUS)	
	3-864-987-31	MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,DUTCH,ITALIAN) (CND,AEP,FR)	
	3-864-987-42	MANUAL, INSTRUCTION (CHINESE,KOREAN, URDU) (E,HK,JE)	
	4-972-888-01	CASE, CARRYING	
	8-953-218-90	HEADPHONE MDR-E838SP//K SET (HK,JE)	
	8-953-278-90	HEADPHONE MDR-A34SP SET (US)	
	8-953-304-90	RECEIVER MDR-E805SP SET (CND,AEP,UK, FR,E,AUS)	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

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